NAVY CIVIL ENGINEER

SPRING 1972

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Q What's Going On In Washington?

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Speaking From Topside

Results of the recent readers' survey conducted in *The Navy Civil Engineer* have indicated a desire to know more about what is going on here at headquarters. It's the intent of this issue to cover a few of the programs we are currently involved in. To do this, I have asked those personnel who worked directly on each of the projects covered to tell you about them.

In addition to knowing what we are doing, I know all of you are interested in where we are going. This is a difficult subject but I will try here to give you what insight I have.

In our democratic society, with the tremendous strength and influence of public opinion, our military history has sometimes been more influenced by world events than military planning. I am, of course, not in a position to predict future events, but I do think there are a few trends we might examine which will, at least, give us some indication of what lies ahead.

As the Vietnam War winds down, there is tremendous pressure to reduce the size of the Armed Forces. As our numbers reduce, we are forced to place greater reliance on our reserve forces to maintain our ability to respond in the event of a contingency. In this area, our reserve naval construction force is doing a tremendous job. In fact, our biggest problem has been in developing a hardware readiness to match their personnel readiness.

The desire to move toward an all volunteer force and a general trend in our society of becoming more aware of people and their problems has caused the Navy also to become more people-conscious and to move rapidly toward making the adjustments necessary to attract and retain qualified personnel. This has, of course, been the driving force behind the Navy's program to improve the habitability of the shore establishment. With a 3 billion dollar deficit in personnel support facilities, we will need to continue to aggressively pursue this program.

With the ever-increasing size of the Soviet Fleet and the large number of our outdated ships, the Navy will be forced to devote substantial resources to improve ships and weapon systems. These will require new and improved shore and fixed ocean facilities to support them. The Trident Program (formerly the ULMS Program) is one example where we will be involved in a large construction program in support of these new systems. I think we will see a number of other construction projects of this nature in the future.

Domestic programs are taking an increasing amount of our resources. Our pollution abatement program will continue to grow and I expect we will see other programs that impose workloads, such as our current surveys to identify unused Navy real estate which can be excessed from Navy roles and used for parks and other facilities.

All of these trends point to essentially the same thing, that is, more work with less resources. On one hand this is and will continue to be a frustration, but on the other hand, it is perhaps an even greater challenge, at least in kind, than we faced in Vietnam; a challenge for all of us at our respective levels to find ways to accomplish what is required more efficiently.

In several of the steps we have already taken in this direction, we have not only been able to accomplish what was required more efficiently; we have improved our effectiveness in doing it. We have not only improved our efficiency by the consolidation of our EFD's, but, from the evidence I have seen, we have happier customers. Through the turnkey procurement procedures we are using on family housing, we have been able to get a better facility for the dollar than we have ever been able to do before, and we have done this using less of our in-house resources. In most every instance our contractor quality control (CQC) program is paying off in a like fashion.

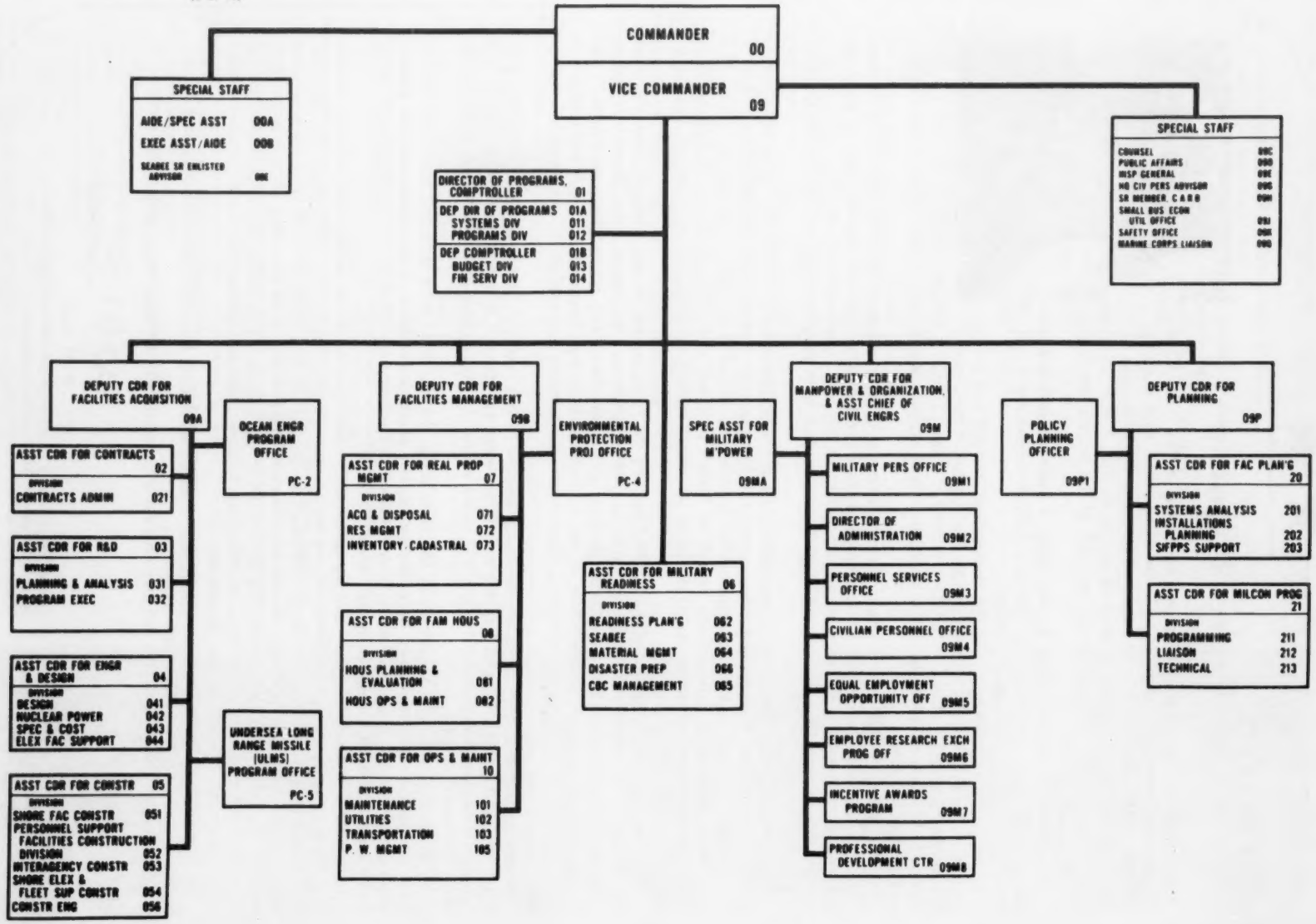
Each of us, both individually and working as a team, must meet this challenge if we are going to continue to support the vital role of our Navy.

I am confident we can and will, not only do what is required, but find better ways of doing it.

W M Enger

W. M. Enger
Rear Admiral, CEC, USN
Commander
Naval Facilities Engineering Command

NAVAL FACILITIES ENGINEERING COMMAND
HEADQUARTERS ORGANIZATION
(3 31 72)



The COMMAND MANAGEMENT Plan

The Command Management Plan is really a collection of all those things that we regularly use to direct our management efforts in running the business of the Naval Facilities Engineering Command. It does not generate anything new. It puts together those things we have regularly used in the past plus current changes that respond to new directions and new initiatives, so that everyone connected with our business, whether it be the person who actually carries out the details or the person for whom we work, can see our guidance for management of our business.

It consists of a collection of all the statements of our mission, all of our operating policies, all of our specific objectives, all of our goals, and a current plan for the accomplishment of these goals and objectives, together with an indication of the resources we have.

The Command Management Plan is published as a large book containing three major sections.

Precepts—Objectives—Plans

The first section, titled "Precepts," simply contains those statements of our mission and our responsibilities. It tells us those things which we are required to do. These obviously are subject to change, but by and large our mission and our responsibilities are relatively stable. Consequently, this first section of the Command Management Plan records things which need very little updating.

The second portion of the Command Management Plan contains the "Objectives Plan." *The Objectives Plan is simply a recitation, a listing of our objectives. In general, it deals with our long-range goals.* It spells out what kind of things we are expected to accomplish in order to carry out the mission in accordance with the policies that were set in the first part of the Command Management Plan.

The third section is a specific operating plan for the current fiscal year. *This "Operating Plan" will provide the specific goals that we expect to achieve this year.* Presumably, whatever we do this year ultimately will contribute to the accomplishment of our long-range goals, and will be in keeping with our mission and our responsibilities. The Op-Plan also indicates how the resources, in terms of people and money, will be distributed among those elements of the Command which will be required to carry out and accomplish these specific goals for the current fiscal year.

Probably the most useful innovation, in the way we do business, has occurred in this part of the Plan. In the past, we generally budgeted from historical data. We looked at what we did in years past in each of the areas that we were working in, to provide a guide for what we ought to have for next year. When you make up a successful budget, it's a logical thing, normally, to then distribute those resources much in the same proportions you used to build the budgets. So, we tended to make up budgets based on what we had done before. As a follow-on technique we tended to distribute our resources much in the same manner as we had distributed them in times past.

New Allocation Mode

The present system that we use in the Operating Plan uses historical data as only one factor in how the resources should be distributed.

Specifically, we now take the statement of those things that we have agreed we would like to accomplish in this particular fiscal year, and we determine the amount of resources it takes to do that. This may or may not be related to the amount of resources we used to accomplish that or a similar task the year before. It's quite conceivable that if the total amount of resources is different from what we had last year, some things that received an allocation of man-years of effort and

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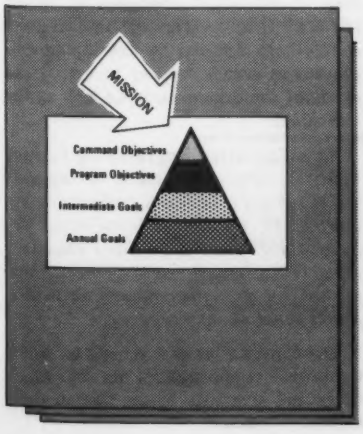
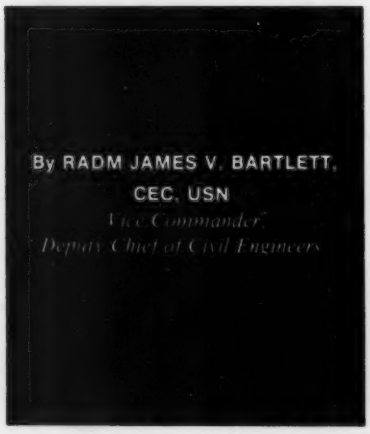




The COMMAND MANAGEMENT PLAN (Cont'd)

money last year might get nothing this year, or a fraction as much.

There are many things in these days of declining resources that seem impossible to accomplish. And yet, we know there are some tasks we must do. So the only alternative is to stretch out the time required to accomplish them.

One of the benefits that we enjoy by combining all these things into one volume is the fact that we can readily distribute it up and down the chain of command and laterally. Not only those who must take part in the execution of our plan, but those who are affected by the execution of the plan, can go to a common source of guidance and discover how we are guiding ourselves. They can look at our Op-Plan and see very clearly the tasks we intend to do. They can see the resources we intend to allocate to accomplish those tasks.

Then if our boss up the line determines that there are other tasks not listed there that he thinks are more important for us to do, or determines some reallocation of our effort, he can look at the guidance and find that we did it on an orderly basis, we did it on a very carefully determined basis. If he wants to change it, he can see what he has to sacrifice in order for us to change course.

Similarly, people downstream who are involved with the execution of the finer details of our objectives and goals for a particular year can look and see how their slice compares with the whole. Everyone tends to feel, in times when there's not enough to go around, that he may not be getting a fair share of the resources, but by this device, he is able to see how the whole program is balanced. It also gives the Command an overview.

We certainly have the capability, if we find that any part of it was planned less effectively than it might have been, to change the resources. We don't like to do that, as a rule, because it destroys the stability of our operation if we keep shifting and changing.

The Command Management Plan encourages us all to be good managers and creates greater stability throughout the organization. At the top we manage our resources as a whole to accomplish our mission and responsibilities. Elements and sub-elements within the Command are responsible to manage the tasks and functions assigned to them within the resources they are allocated.

We believe with the Command Management Plan, we have a real effective, meaningful, integrated management tool that allows all levels of our organization to utilize the resources we get to best advantage.

Professional Personnel Programs

By HERBERT DAUBER
Personnel Services Officer

The Facilities Engineering Career Plan recently established represents an essential element of the Navy-wide Career Management Program for Engineers and Scientists.

Career management is not a new concept. It encompasses the traditional personnel approaches such as recruiting, training, and promoting employees and evaluating their performance.

The difference between career management and these separate personnel processes is that career management systematizes long range and immediate career goals by charting a plan of action to obtain, develop, and maintain the kinds and right quality of engineers and scientists to meet the Navy's needs.

Career management is often a misunderstood term. We do not suggest that career management will control the careers of individual employees. It simply insures that sufficient time and resources are devoted to developing employees in such a way as to satisfy the needs of the organization as well as the individual.

The Facilities Engineering Career Plan relates to our mission of supporting the Navy's facilities engineering requirements. *We are responsible for delivering high quality facilities engineering services, which can only be accomplished by a competent and dedicated professional workforce.*

The Career Plan is a vehicle to insure we provide opportunities for our engineers and scientists to develop to their highest potential.

The Reorganization Of
MANPOWER MANAGEMENT
And Why It Was Done

By CDR J. E. McNEILL, CEC, USN
Military Personnel Officer

The Phase II Civil Engineer Corps Career Development Education and Training Board, which is commonly referred to as the "Iselin Board," was charged with the responsibility of looking at what Civil Engineer Corps Officers are trained to do, in relationship to the total needs of the Navy for their kind of services.

It developed, in terms of location, the number of grades and the number of billets which make up a total Corps structure. In doing this we looked at all the activities where we have CEC officers and where CEC officers are not currently used but could possibly be utilized, and developed staffing criteria for the different echelons of command. This was the basis of the total Corps structure.

With the impact of implementing a Zero Base Study for the Corps, we realized that considerably more attention to military personnel management would be required here at Headquarters. At the time we were making the study, the military personnel function was under the Assistant Commander for Military Readiness.

The Board concluded that from the standpoint of overall operation of the military personnel function, both for the Civil Engineer Corps officers and for the Group VIII community, that it would be desirable to have this function separated from Military Readiness. The primary reason for this was that the major functions of the military personnel management were "personnel" oriented rather than "operationally" oriented, which is the major thrust of the work of the organization.

Separate Manpower Deputy

As we developed our course study, we came up with a recommendation that all our military personnel functions for the Civil Engineer Corps and the Group VIII community should be handled by a senior officer reporting directly to the Commander and the Vice Commander. In mid-1971, the Commander decided to implement this recommendation. *However, in implementing the recommendation, it was decided that the concept as presented by the Iselin Board should be broadened to include both military and civilian manpower management.* We therefore set up the Deputy Commander for Manpower and Organization and Assistant Chief of Civil Engineers.

The Assistant Chief of Civil Engineers was the function with which the Zero Base Study was concerned; that is, the administration and management of the Civil Engineer Corps and the Group VIII communities. The broadening of the concept was done to, first, insure integration and coordination of all manpower programs, both military and civilian; secondly, to achieve high visibility of our military and civilian manpower programs; and finally, to combine the administrative functions and services with manpower management to provide full recognition of the supporting relationships between manpower management functions and administrative functions of headquarters.

We feel that the resulting organization has achieved the three objectives that were set out when we formed the organization in August 1971.

Personnel Development

By G. H. PEARSALL
Civilian Personnel Officer

The Command has improved its training program immeasurably over the last year by providing appropriate space for in-house training. We are able to take a group of people who need a particular type of training, and go out and contract for an excellent instructor who will come to the building and teach the course. This negates a lot of time spent in travel and in attempting to send people all over the map to obtain the training that they need in their particular job. We have had such courses as: effective data systems development and effective briefings. *I believe we are seeing the effects of these courses, particularly the effective briefings courses in the types of briefings individuals are making today.*

Turning to the Management Intern Program, I believe this command has not used this very top register in trying to bring young people into the organization. The Federal Management Intern Program has been validated statistically — both by navy and by the Civil Service Commission—as providing the very top group of people scholastically, who have the ability and potential to move rather quickly into management positions of the highest order. I think that by appropriately tapping this register, we should be able to bring in, and well utilize, people who will be able to fill top management positions in the years ahead, particularly considering the rate of retirements. We have a very high retirement eligibility rate in the next three and four years.

Gaining Social Objectives

Another program — the Co-op Work-Study Program — has a double objective. First of all, we are helping ourselves by training the young people for command jobs in the future. *Secondly, and the major reason why we began the program, is to meet a social objective need.* Our co-op program today is with Southern University. We have two co-op students currently onboard. This program gives them an opportunity to earn dollars and gives us an opportunity to assist them in gaining their college education. We have two more students scheduled to come onboard in June. So, we are helped, they are helped, and we are meeting a social objectives goal.

The commander of the Naval Facilities Engineering Command is responsible for insuring that the equal opportunity policies are vigorously carried out at all levels within the command. As in other program areas, line managers are expected to fully support the commander in carrying out this program, for they are the real key to full achievement. Each employee of the command has a supporting role, which is to comply with the spirit and intent of the Equal Employment Opportunity Program.

equal employment opportunity

By LOIS S. LEWIS
Equal Employment Opportunities Coordinator

The Equal Employment Opportunity Program is important to NAVFAC because motivation will be increased and a climate conducive to higher morale will be created as employment opportunities become more equal for all personnel. Through greater cohesiveness we can more effectively achieve the command's goals and objectives.

The last few years have been significant milestones in the Command's Equal Employment Opportunity Program. We have an on-going, positive program, which makes equal opportunity a real fact. Significant gains have been made as a result of the emphasis on this program. Capabilities for progress have been strengthened in the past year. Command activity has increasingly reflected a greater awareness of the program's objectives and there has been a deeper sense of commitment and heightened recognition of the objectives of the Equal Employment Opportunity Program.

Minority Talent Search

We have established a clerical support group to provide for greater intake of minority personnel into the regular clerical workforce.

In 1971 we attained all of our numerical goals for minority employees and exceeded them at the GS-14 and GS-6 levels by one.

We established a coordinated minority professional recruiting plan utilizing all U.S. activities of the command as recruiting agencies for themselves and for other activities.

The accomplishments represent an encouraging response to the social objectives program of the nation. *However, much remains to be done to achieve full equality of opportunities,* although current personnel retrenchments and reductions of average grade levels make this more difficult to accomplish.

All supervisory personnel are being asked to question the necessity for filling higher graded vacancies at their established grade levels. We want them to examine the possible retrogression of positions to lower levels as a more effective way to accomplish assigned work. This will provide the lower-grade employees, who have potential and motivation, with an opportunity for advancement.

NAVAL FACILITIES DATA SYSTEM

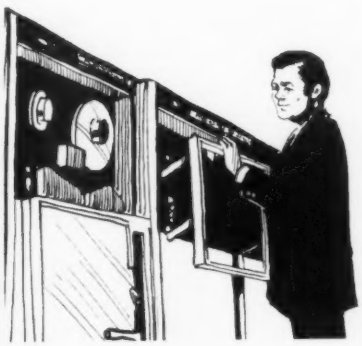
In the past three years NAVFAC has taken a tremendous leap forward in planning and specifying an integrated Naval Facilities System. At present the demand for data processing service of our central computer at FACSO has outpaced the available computer and transmission equipment available, and thus the response capability has reached a temporary plateau. We had requested and anticipated a substantial equipment upgrade to occur late last fall, which has been delayed perhaps for a year. Many outputs and subsystems already specified, analyzed and programmed are being placed "on the shelf" to be ready to go when additional processing equipment becomes available.

The progress to date, however, is something to be looked at with pride. *In three years we have seen CBCs Davisville and Gulfport implement financial and supply support systems via network teleprocessing.* The Seabee Systems Engineering Office (SSEO) has broadened its integrated coverage of equipment, spare parts and procurement to cover all USN numbered gear. All Continental U.S. engineering field divisions have been linked in a common system to cover Resource Management System (RMS), Integrated Program Management System (IPMS), Military Construction (MILCON) Accounting and Construction Management. The Pacific Ocean Area OICCs have been picked up in a nearly identical system with machine support in Bangkok and will begin to be integrated with continental U.S. engineering field divisions (CONUS EFD) processing as soon as the computer upgrade is achieved.

A greatly improved Real Property Inventory system and Naval Facilities Asset Data Base are operating. PWC MIS has entered the Pacific via Guam, Subic Bay and Pearl Harbor and will shortly be translated for operation on large modern Naval Supply Systems Command (NAVSUP) computers. The PWD effort at Indian Head is producing successful applications that should be useful to Public Works Departments throughout the Navy.

We've come a long way in a short while.

By CDR C. F. ROBINSON, CEC, USN
Systems Division Director



Resources Outlook

By FRANCES M. MORGAN
Branch Head, Program Liaison

Our office is responsible for putting together in one package the projected resource requirement for NAVFAC to carry out its mission as supported by the appropriations, O&MN, OPN and RDT&E. Projecting the results of the various reviews these submissions receive up the line is a difficult matter.

With the decrease of support that's required for Southeast Asia, there is some decline in our resources in a few areas.

At the same time there are new programs that require additional, or increased, emphasis. For example, the Environmental Protection Program will certainly grow in both people and dollars for support. Ocean Engineering is another exciting, and certainly a challenging, program for NAVFAC and will offer opportunities for growth. There is a great deal of emphasis being placed on habitability for our Navy men and their families.

There are other new programs this year in NAVFAC — the Joint Resources Assessment Data Base System and the Radiological Affairs Safety Program, in support of the navy worldwide. The growing MILCON program will enhance the future of NAVFAC.

So, while there may be reduced efforts in some areas, there are expanding ones in others. The outlook for NAVFAC is a challenging one.

Innovative Contracting

By WALTER S. EVANS
Director, Contracts Division

The command's Contract Division is currently engaged in utilizing innovative contract methods. In this connection, we are applying the contract tools of two-step formal advertising, multi-year contracting, award fee contracting and single-year contracting for such items as janitorial services, with a government option to renew for an additional one-year period.

The two-step formal advertising technique is a method of procurement designed to obtain the benefits of formal advertising where it is considered otherwise impracticable to do so because of inadequate specifications and designs. This method tends to bridge the gaps between negotiated procurements on one hand and formally advertised procurements on the other. *Two-step formal advertising is generally useful in procurements which require technical proposals and especially in those where the proposals are in advance of the state of the art.*

Multi-Year Contracting

Multi-year contracting for operations and maintenance of family housing is being carefully explored. However, at this stage, we believe that NAVFAC's device of a one-year contract with an option to renew for an additional year is preferable in many respects. From our experience in maintenance and janitorial contracts, we believe that this method is preferable to being "locked in" with a contractor for some four years of housing maintenance or janitorial services. Nevertheless, we are open-minded and have not ruled out trying a four-year contract on an experimental basis.

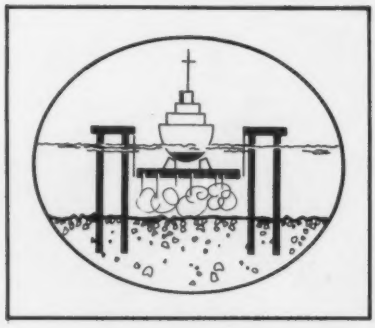
Award fee contracting has been an essential contract tool utilized in RVN and Thailand for extensive construction work performed in isolated areas under extremely adverse construction conditions. The use of the award fee concept for construction contracts of this magnitude is considered unique and innovative, and has been highly successful.

Award Fee Contracts

In the event of a similar emergency requiring construction in remote areas, we would certainly utilize the award fee concept. Under an award fee contract, the contractor receives a nominal base fee for normal performance with a substantial inducement for additional fee based upon exceptional performance. The contractor's overall performance is graded by an OICC evaluation board (three members), and is final, subject to appeal to the commander, Naval Facilities Engineering Command (with no appeal under the disputes provisions of the contract). Thus, the contractor is highly motivated to perform in a manner to secure an attractive award fee for high-quality performance.

In this "age of records," we are consistently striving to streamline navy contracting for construction, maintenance, janitorial service, etc., so as to arrive at the best possible solution with the minimum of administrative effort.

THE AMMI LIFT DOCK



We believe the Ammi Lift Dock will have a considerable impact on waterfront facilities of the future. It will reduce the cost of drydocking facilities for large ships.

One major advantage of the lift dock is the ease with which it can be expanded to accommodate larger ships. Another advantage is the ability to drydock a ship and then float it on a transfer platform to a repair facility further up or down the river or canal from where the drydocking facility was located. One elevator system could serve several contractors doing repair work on various ships and not require each contractor to have his own drydocking facilities.

At the present time, we're involved in testing and evaluation at Davisville, Rhode Island. We have on the drawing board plans for drydocking nuclear ships of 16,000 ton capacity. We also have some drydocking requirements for smaller ships and are presenting a case to use the Ammi Lift Dock in competition with other drydocking systems. It appears that in the next few years there's a good likelihood that some will be used in operational facilities in the U.S. Navy.

By CDR. WILLIAM J. BURNS, CEC, USN
Director, R&D Plans and Programs

PROJECT ELF

Expeditionary Logistic Facility

By MILTON ESSOGLOU
Assistant Director
R&D Plans and Programs

Project ELF (Expeditionary Logistic Facility) is a project that we have proposed to the Chief of Naval Operations for advanced development. In project ELF, we are trying to develop all the hardware and capability necessary to provide for the unloading of all types of ships, especially non-self-sustaining containerships, in forward areas where there are inadequate or totally lacking port facilities. The importance of Project ELF can best be appreciated by realizing the fact that the United States and therefore the Department of Defense, is rapidly becoming increasingly dependent on containerships and barge ships.

For all practical purposes, by 1975, we will have become totally dependent on the containership. This means that any appreciable sealift of forces in carrying out our military commitments (including support of amphibious operations) will have to utilize merchant ships.

Unloading Needs

The majority of the U.S. flag merchant fleet sealift *capacity* is in containerships. Commercial interests are driving towards ships that are without onboard cranes; in brief, they cannot unload themselves. They are called non-self-sustaining containerships. Containerships have been designed so that cargo can most efficiently be transported when it is stored in containers. Containers are big boxes (8′ x 8′ x 20′—40′) that weigh 20 to 35 tons apiece when loaded. To unload these containers from containerships under contingency conditions in forward areas will require capability that approaches that of a fully developed port terminal, such as those seen at Port Elizabeth, N.J., Norfolk, and San Francisco.

The trick is to be able to install this capability early in the time frame of a military operation in areas that are essentially beaches. *The problem is not so much an engineering problem as an economic problem.* As we look into the decade ahead with shrinking defense budgets, it is not just a matter of coming up with an adequate engineering solution to the problem. Indeed, we believe we have about a dozen reasonably good engineering approaches to the problem.

The problem is to pick that engineering approach which the Navy is likely to be able to afford and invest in during the next decade.

Training Needed

In addition to new hardware, we need to consider the skill requirements of our construction forces in installing an Expeditionary Logistic Facility. Acquiring and maintaining these skills in peacetime is not a simple matter and therefore the R&D problem becomes that much more difficult.

The requirements of the past and the future clearly have shown that conventional construction, as we have carried it out in the past, namely dredging, pile driving, constructing concrete piers, and installing cranes, etc., bit by bit, cannot possibly fit into the limited time that will be allowed for carrying out our support commitments to the Navy-Marine Corps or the joint service team. This fact has led us to consider essentially pre-engineered equipment. Most specifically, the concepts which we have developed through exploratory development programs, resemble ships rather than conventional piers.

For the ship to shore linkages, we find that the pontoon is still a very versatile component which can be utilized in the container era very successfully. This was recently demonstrated in a test designed by the Naval Civil Engineering Laboratory at Port Hueneme and executed by ACB-2 in Coronado, Calif.

There are many other areas which require additional development effort and experimentation if we are to develop a system which can be deployed very quickly and provide us with what RAdm. Husband called an "instant port". Central technical problems are: container transfer in a state of relative motions induced by 6 foot seas, and mooring and fendering between floating piers/ships and containerships. If these problems sound old — well they are old, but in the past we managed to avoid them because we had the time to find a harbor and do conventional construction.

We in NAVFAC anticipated the impact of containerization on military shipping and on the Department of Defense as far back as 1968. Our efforts in the last four years have been in the exploration of options and the development of concepts to demonstrate to the Chief of Naval Operations the kinds of capability that could be developed. It would not be in poor taste to point out that in our efforts, we have led the Department of Defense in designing alternative approaches to this particular problem.

We're now in a position to go forward with hardware development if and when the CNO so directs.

Environmental Data

By STEPHEN HURLEY
Program Manager,
Environmental Protection

The Environmental Protection Data Base Program is a Navy-wide program to gather data to show how the Navy shore facilities, ships and aircraft are affecting the environment. The Commander, Naval Facilities Engineering Command, has been tasked by the Chief of Naval Material to create a navy-wide Data Base Program in the two-year time period of FY '72 and FY '73.

NAVFAC, as Program Manager, has in turn designated the Naval Civil Engineering Laboratory (NCEL) as Deputy Program Manager. The Environmental Protection Data Base Office has been established at NCEL and is an operating unit currently working 8 a.m. to 4:30 p.m. Monday through Friday.

Pilot Tests

The major FY'72 effort has been at three pilot test locations — Pearl Harbor, NAS North Island, and NAD Crane, Indiana. The purpose of the pilot tests is to identify and measure actual sources of pollution to determine what instrumentation and techniques are needed to monitor the pollution sources at the lowest cost. The EPDB Program is an integral part of the Navy Environmental Quality Program and OP-45 as OPNAV program sponsor is vitally interested in a successful program development. The program manager reports progress and problems bimonthly to both MAT 0342 and OP-45.

One purpose of the program which should be kept in mind is the need for a base line on environmental quality at Naval activies. *Executive Order 11507 and 11514 and other directives require that all facilities, and here we use the term "facilities" to include aircraft and ships owned by or leased to the Navy, be designed, operated and monitored so as to conform to air and water quality standards.* In order for the Navy to determine how existing pollution sources can be monitored at the lowest cost and to determine what the environmental quality is in areas where Naval operations occur before and after pollution abatement projects are installed, a systematic study of alternatives is being made in depth.

Data Users

The Navy needs reliable environmental data generated through recognized measurement and test procedures. Confidence in this program's design and capability to generate and provide reliable data at a reasonable cost will determine the program's future. The program will provide useful data for station commanders and ship commanders. They are considered to be the first level of responsible persons who have a need to know whether or not their facilities are in compliance with a given standard.

A second level of EP data users is envisioned as major claimants, the SYSCOMS, OPNAV and other commands that will in the future provide funds for the system. A third level of users would include the research community, other federal agencies such as EPA, as well as SECNAV, DOD and the Congress. The immediate goal of the EPDB Program is to develop a useful system that can be implemented Navy-wide by July 1973.

SHIP TO SHORE WASTE DISPOSAL

By ROBERT J. LOWE Sr.
Chief, Civil Engineering
Design Division

With the imposition of the requirements for no discharge into the contiguous waters by a naval ship, a system had to be developed for the transfer of ships' waste to shore. A standard system for transfer of the ships' waste was developed, in cooperation with Naval Ships Engineering Center, consisting of a flexible rubber hose equipped with a quick disconnect coupling at each end. This system was developed and tested under contract with the Naval Civil Engineering Laboratory, Port Hueneme, for performance in a cold weather environment. During the months of January and February of this year, wastes were transferred successfully through the hose from the USS Fulton, berthed at New London, Connecticut, to a shore pier connection.

NAVFAC has developed definitive drawings and related criteria covering the transfer system, and a method of installing sewer lines on piers and wharfs to transfer wastes to shore facilities. These drawings and criteria were forwarded to the field divisions in early February of this year for incorporation in the FY'73 and the following years' programs.

OIL SPILLAGE

By ERNEST R. VIOLETT, Jr.
Branch Head,
Mechanical Engineering Design

For years man has indiscriminately discarded waste oil products. This practice can no longer continue.

The U.S. Navy is committed to the elimination of pollution caused by waste oil, both afloat and ashore. The elimination of oil pollution from shore facilities, both existing and future, means substantial changes in the way POL facilities are designed and constructed. In order to determine these changes, NAVFACHQ Design Division has prepared, by both A&E and in-house effort, comprehensive criteria for the prevention and abatement of oil pollution which will govern needed changes to existing facilities, as well as control of the design of new facilities. This critera has been issued in the form of advanced guidance, and is now being introduced into the Design Manual and P-262 documents.

Criteria is also in preparation for the facilities needed to receive oily wastes from ships of the fleet, which in the near future will be prohibited from dumping their waste products at sea.

NAVFAC personnel have also assisted in Navy-wide surveys to determine quantities of shore-generated oily waste. At headquarters level, NAVFAC is working closely with NAVSUP and NAVSHIPS to solve joint problems related to oily waste pollution.

The Vice Commander Tells Of The

NEW BACHELOR ENLISTED QUARTERS

By RADM J. V. BARTLETT, CEC, USN

Each year the cost of construction has been increasing at a rather steep rate. In general it has been rising at 10% per year. The Congress, which authorizes us to build BEQs, sets limits on how much we're allowed to spend per person. This translates into how many dollars per square foot we can spend, because OSD specifies how many square feet per man we can build.

Congress, from time to time, has increased the statutory cost limit, recognizing that the cost of building is going up. But the rate of increase has never quite kept pace with the actual price we've had to pay. Meanwhile, the Office of the Secretary of Defense, in order to improve living conditions, has increased the number of square feet allowable. Although a welcome move, this compounded the cost problem. *We were thus compelled to look for a more economical way to build BEQs.*

Our search fell on fertile ground when we noted that we were paying at least 15 percent more per square foot to build a structure to house a bachelor than we were to build a house for a married man. The reason was apparent. We were building barracks massive like battleships. The idea was to make them "sailor-proof", immune to the rough usage that was considered inevitable.

Sailors are Domesticated

But why should it be inevitable? Like anyone else, the average Navyman grows up in a house that has a living room, bedroom, bath, dining room and kitchen all built to commercial standards. For a relatively brief period in his life he lives in a barracks, then, with a family of his own, he is back in a conventional house again. His "destructive" tendencies were curbed in his parents' house and probably never emerged in his own. *So why couldn't we house him during that interim period in a barracks built to the same construction standards we use to build a family house?*

To sample this idea we took the plans for a set of family quarters, reconfigured the rooms to eliminate family type elements such as the kitchen and dining room and then arranged the available space to provide a living room, bedrooms and baths. All of this was done in precise accord with the space allowed by OSD for these functions in a BEQ.

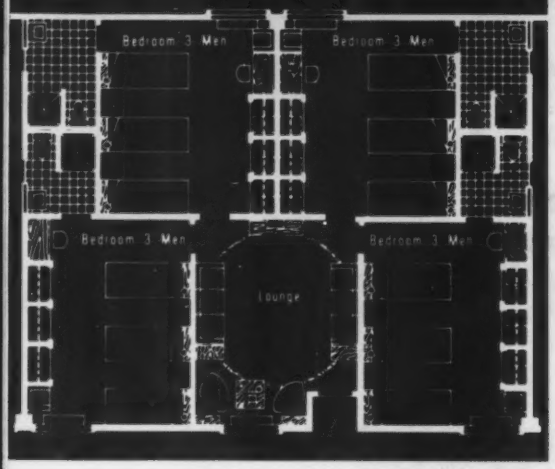
The feasibility of the basic concept was readily demonstrated, so we set about in earnest to check out the problem areas that might be involved.

The obvious one of significance was the cost of maintenance. We pumped our wealth of information on this subject into a computer model, tested it with considerable severity and found that even on a 25-year life-cycle cost, a BEQ built to commercial standards would be 3 or 4% less expensive than what we were then building. This fact, coupled with a conservative estimate of 12% savings on initial cost, sent us running to the drawing board.

Retain Modular Design

Several years earlier, in an effort to provide a more home-like atmosphere in barracks, we created a modular design that consisted of a living room and head surrounded by six 4-man bedrooms. The first one of these was built at Bethesda and a similar concept in high-rise was built at Ream Field. These two schematics were repeated at a number of locations and proved quite popular. Our first thought therefore was to merely translate these schematics to commercial standards. But the more liberal space allowance made this route impractical. Also there was a significant space inefficiency in the Bethesda barracks caused by the necessity of providing interior corridors to permit safe exits from the back bedrooms in case of fire in the living room. This used up about 8 sq. ft. per man.

The modular concept, however, was retained and the resulting schematic featured four 3-man bedrooms surrounding a living room. Off each bedroom was a private, three-fixture bath, just like in one's home. The rooms were so configured that four bathrooms came back to back, two of which served rooms in one module and two served rooms in the adjacent module. This arrangement enabled us to provide fire doors in the common wall between the two groups of bathrooms so that escape from a back bedroom could be effected



through the adjacent module in case of fire in one's own living room. This eliminated the need for interior corridors and this footage went into living space.

We put this schematic into the hands of an A&E who worked it into finished form, with certain features varied as necessary to make it suitable for a variety of locations and structural demands.

Since Janury 1972 we have bid this design at nine sites, with most gratifying results. Every one was awarded within available funds and at full scope with respect to the number of men accommodated.

At one location we had to utilize a feature of the design that gives us a financial fall-back position in case the bidding climate is unfavorable. Instead of providing a private head for each room we can let one head (with fewer fixtures than for two) serve two rooms or even one gang head serve four rooms. But in each of these less expensive schemes the walls enveloping the total head space are the same and the plumbing stack is the same. Therefore, either of the fall-back plans can later be up-graded to private heads with no major structural changes and with a minimum of plumbing modifications.

We are sold on the benefits we get from the use of essentially one set of plans that can be site-adapted wherever we have a BEQ to build. Not only do we avoid the cost of re-inventing the wheel but we enjoy the bonus that comes from having plans ready to bid much sooner than we would if we designed a BEQ for each site separately.

The plan is not without its critics. The chief objection is that the living room is not big enough for a dozen men to occupy at one time and that it must also serve as a passageway. It is argued that a man would be better off if the living room were eliminated and his share of that spaced added to his bedroom. We will take this and all other suggestions into careful consideration as we evaluate the in-service use of the new BEQ. But we are convinced that even though this design is not the only solution it is one solution that actually works, both in terms of giving the Navyman a more habitable bachelor home than he has ever had before and of doing so within the budget.

INTERIOR DESIGN

• furnishings • colors
• accessories

By GEORGE E. BAER
Branch Head,
Furniture Specifications

Interior design is a professional design discipline which has been made a part of NAVFAC's facility design program. NAVFAC's integrated facility design policy states that our "design service" is not really complete unless we adequately consider everything about the buildings, including the interior and its furnishings.

This is where interior design comes into the picture. We work in partnership with all of the other design and engineering disciplines to deliver to our customers a complete living, working or recreation package.

Our responsibility is divided into two segments. First, there are the structure-related aspects of the building — including such things as the wall color coordination and selection of floor coverings. The second part involves furniture and furnishings. Selection of the chairs, tables, sofas and all the accessories that one commonly finds in interiors of all kinds.

Our major concern is initial outfitting of the Military Construction Program. Navy spends a great deal of money for the initial furnishings, and we help insure that money is spent well. By buying well in the beginning we receive longer service and reduce maintenance costs. In doing so, we serve our customers better because we buy the right items for the job. Items that function well, look well and wear well.

In the past few years, NAVFAC has made tremendous strides in this direction. We have staffed our Engineering Field Divisions with interior designers, with the prime objective of outfitting new construction. This new design capability has also given us another opportunity to help major claimants in a very tangible way. Replacement and augmentation programs for which they are responsible require design support in order to be completely successful. We help in this area where we can. Self-Help projects are on the increase and our designers in the EFDs also support this program.

Why is the interior design program important? To begin with, it supports efforts toward an all-volunteer force by providing better facilities. This, of course, in recent years has become most important.

Primarily, though, it's because we are supporting ADM Zumwalt's effort to improve life for Navy people. Here, we are involved in a direct, people-oriented service to the men and women of the Fleet.

OUR NUCLEAR POWER PLANTS

On September 12th, 1971, the PM-3A nuclear power plant achieved a new operating record for nuclear electric power plants of 172 days of continuous power operations. This achievement on the part of NAVFAC, the Naval Nuclear Power Unit, and the PM-3A operating crew, is a very great and a very personal one for all of us. It would be beneficial to examine the importance of this achievement to the Navy.

The plant is a pressurized water nuclear electric power facility, generating approximately 2,000 kilowatts of electrical power and approximately 30,000 gallons of fresh water from its desalinization plant. As reactors go, it's a small facility. However, some 12 years ago, when the Navy established a land-based nuclear program and determined that it would be directed by the Naval Facilities Engineering Command, it did represent the beginning of a recognition that nuclear power had potential for Navy applications in areas other than nuclear propulsion.

Navy Experience

The continuous power run achievement resulted from a combination of well-learned experience, comprehensive training and hard work on the part of all members of the program and particularly those assigned to the Naval Nuclear Power Unit, Fort Belvoir, and its McMurdo Station Detachment. *This achievement has demonstrated that we now possess the capability to remotely support such complex and technically demanding facilities, whether they be located beneath the sea or in remote Antarctic/Arctic regions.*

From this unique engineering and logistic capability has emerged a team that can provide integrated technical and logistic support to obtain maximum reliability from any highly technical facility. The method used in developing this capability as well as the capability itself can be applied to other areas, and the personnel trained within the nuclear program are extremely adaptable for utilization in many technical areas.

The PM-3A had a second significance. It represented a spring board of capability applicable to other areas of endeavor.

At the direction of the Chief of Naval Operations, the Nuclear Shore Systems Program developed capability in areas such as radioisotope power generating (RPG) systems and radiological affairs support. In 1964, it was recognized that there would ultimately be many requirements for fixed power sources beneath the sea and that there were no power systems suitable to operate in such an environment. Coincidentally, the U.S. Atomic Energy Commission had been working on developing small self-contained radioisotopic power generators and NAVFAC saw that these systems had significant potential for Navy application. NAVFAC discussed the feasibility of such applications with the USAEC, ultimately borrowing several units for test and evaluation.

Radioisotope Power

NAVFAC has continued to utilize RPG's in ever increasing numbers, particularly emphasizing the program during the years 1968 through 1972. Today we operate nearly 50 of these power systems in various remote environments, the majority of which are used in the sea. These unique power units are currently giving the Navy a valuable technological advantage in the area of power systems for remote environments.

We have predicted, however, that power level needs for RPG systems would increase. While the initial RPG systems were very low-powered, falling into the 1 watt, 10 watt, 25 watt region, *we have just contracted for procurement of a 100 watt radioisotopic thermoelectric generator (RTG),* the first unit of this size to be built for ocean application.

But this is not enough, we are looking even farther ahead in our research and development program to large systems of kilowatt size. In this program we're currently working on a 20 kilowatt radioisotopic generator for underseas application where evolving undersea technology demands reliable long-term power. Properly, this development program has been initiated in cooperation with the Atomic Energy Commission, using Navy and Atomic Energy Commission laboratories and with the ultimate goal of building this system for Navy application by 1976. We have experienced very good success so far in the small power units and are making good progress in technology evaluation work for the large unit. *We anticipate that NAVFAC will be able to successfully achieve the development goal.*

The most important gain for the Navy through the PM-3A nuclear power plant has been the development of a unique "zero defect" integrated logistic support system. The recent power run record has demonstrated the validity as well as the capability of this support system. In addition, the PM-3A has led the way to an effective underseas radioisotopic power generator program which has truly given the Navy a technological advantage necessary for evolving undersea military weapons systems.

By CDR. R. P. COPE, CEC, USN
Director
Nuclear Power Division

RADIOLOGICAL PRECAUTIONS

By GLENN ZIMMER
Radiological Safety Officer

The Radiological Affairs Support Program has been established by the Chief of Naval Material within the Naval Facilities Engineering Command. The CNM has assigned Commander, NAVFAC, the responsibility to act for CNM in matters of radiological affairs. This covers all aspects of ionizing radiation except nuclear propulsion, nuclear weapon criticality, and medical applications within the NMC to, in the words of Adm. B. A. Clarey, "collate, coordinate and monitor — all aspects of radiological controls—."

Part of this program will be to assure that a uniform program of radiological protection is established within all systems commands, with assistance to the fleets on an "as-required" basis.

Focus Responsibility

Up until now there has not been a coordinated radiological program within the Navy. This has led to conflicting regulations in some cases that has ended with confusion and a lack of control. The aim is to bring central coordination to radiological affairs so that the Navy can assure radiation protection of all personnel within the Navy, and of the environment. This program will include radioactive materials that are used under license authority of the Atomic Energy Commission, those occurring naturally (such as radium), and X-rays.

Heretofore, radium has not been controlled within the Navy, primarily because the use of radium has not been regulated by the Atomic Energy Commission, the U.S. Public Health Service, or any other agency. However, radium is just as harmful as other radioactive materials which have been produced in a reactor, and a control program will be brought into effect on this material.

Industrial use of X-rays is another area that will require attention and control. In the past there has not been a program at all locations for controlling the use of X-rays.

There are needs within the Navy to have instrumentation developed for monitoring to help assure radiological safety. Recommendations will be made from NAVFAC to the appropriate naval activities responsible for development of instrumentation or control procedures.

One of the important reasons for having this program is that it is necessary in the field of radiation protection to have technically-qualified personnel evaluate hazards to personnel and to devise control measures. NAVFAC has a small group of highly-qualified, highly-technical personnel in headquarters and at the Naval Nuclear Power Unit to perform this type of a function.

By having a single central office coordinating radiological affairs and providing technical assistance we can assure radiological control and protection. *It is a tremendous responsibility and opportunity for NAVFAC to have been selected to perform this type of a function, because the program is of major importance to the Fleet, and the Navy.*

Cost Estimating By Computer

By RICHARD H. FIELD
Systems Engineer

The cost engineering system is a long range program in which we are trying to give design and construction personnel construction cost information in the form of reference guides and computer programs that will assist in cost analysis and preparation of estimates.

The reference guide contains approximately 10,000 unit prices of CSI coded line items of commonly used construction elements. These are geographically oriented and updated frequently by a unique design of utilizing economic indicators. In other words, pricing of 90 indicators for a geographic region will update these 10,000 unit prices. As a reference guide, it will assist estimators in preparation of construction cost estimates and ROICC personnel in change order pricing.

The second service offered is a computer program designed to generate individual project estimates. The line items will be aggregated along building sub-systems and will offer the user parameter estimates for each of the subsystems chosen.

Hopefully as usage increases we will develop a data bank of cost information that is structured and therefore more useful to the cost engineering process.

The importance of the system to the Navy is to reduce construction costs and to bring in bids within the funds available for the facility.

UNIFORM SPECIFICATIONS

By RICHARD H. WELLES
Director of Specifications & Cost Division

Criticism has been directed against the Federal Government for issuing different sets of criteria for essentially the same types of construction. Pressures had been brought to bear on us by Congress, the A&E community, and the manufacturers. These people couldn't understand why each agency had to have a different way of describing technically what we want for concrete, roofing and the many common items that go into a structure — be it a structure for the Navy, the Army, the Air Force or another federal agency.

The federal construction guide spec program was devised to attempt to solve this problem and to achieve a uniform set of requirements for construction that could be used by all agencies of the federal government. *The program is underway with the goal of achieving this uniformity.*

Through the program we will be able to lump our resources together so that each one of the agencies involved in construction will be able to share a fair portion of the load. *In this manner we will be able to make maximum effective use of the resources that we all have, rather than duplicating each others' efforts.*

CONSTRUCTION — a new direction

By CAPT L. M. CAVENDISH, CEC, USN
Assistant Commander for Contracts

For the past several years, our primary construction effort has been the effort devoted to the Republic of Vietnam. There, our cost plus award fee contract has now reached a total of about two billion dollars. But it is coming to an end. By 30 June 1972, all work under that contract will be completed. Our interests are naturally shifting to other areas.

Outside the Republic of Vietnam, our total construction programs in the rest of the world are in a growth pattern. Not counting RVN, we put about $365 million worth of work-in-place in Fiscal Year 1971. We expect this to increase to $471 million in FY '72, and project about $485 million in FY '73.

Our main effort will continue to be the Navy's military construction program. This program alone was $234 million in FY '71, and will increase to almost $330 million in FY '73.

There are other important elements, however. One of these is the Family Housing Program which will continue to re-project a significant workload. From about $34.5 million in 1971, it will grow to almost $52 million in FY '73.

The work we perform for the Air Force will also continue to be an important load. This will represent about $50 million of work-in-place each year.

Other Customers

Also, we perform work for a multitude of other agencies. Some of these are: the Bureau of Fisheries, the Department of Indian Affairs, the Army, the Agency for International Development, the Department of Interior, NASA, NATO, the Coast Guard and a considerable amount of work in the non-appropriated funds area. This work is hard to project, but we did accomplish about $73 to $74 million in FY '71, and expect to perform another $78.4 million in FY '72. Right now we look forward to about $53 million in FY '73, but it is hard to predict precisely.

Within the Navy Military Construction Program, the makeup of the facilities to be constructed is of interest.

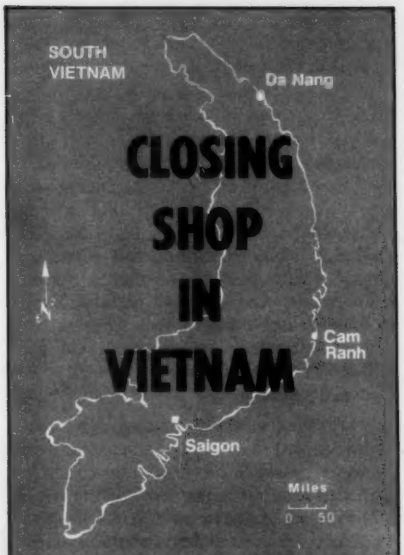
In line with Admiral Zumwalt's push to make the Navy a better place for Navy people to live and work, major emphasis has been placed on personnel support.

As I've already mentioned, approximately $50 million per year of work-in-place is expected in family housing. Within the military construction program, more than one third of the budget will go into such things as BEQ's, BOQ's and dining facilities.

WESTDIV Leader

Another large amount will go into the construction of naval hospitals. *The other large portion of the Military Construction Program, and one of very high visibility throughout the Federal Government, is the pollution aabatement program.* We expect about $50 million per year devoted to this effort. Further in the future, we have other large and important programs. For example, the ULMS (Undersea Long Range Missile System) may be very large indeed.

The foregoing describes our worldwide workload. Our actual contracting and construction are accomplished by our decentralized organizations, the Engineering Field Divisions. *The largest effort for FY '73 will be by the Western Division with almost $150 million,* and the lowest will be our Chesapeake Division at about $35 million. The other field divisions will fall between these extremes.



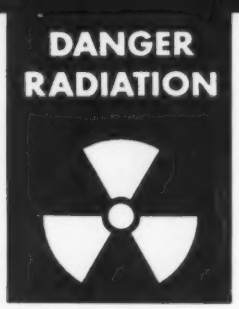
CLOSING SHOP IN VIETNAM

By CDR S. D. LOWE, CEC, USN
Division Director,
Southeast Asia Construction

After ten years of construction in Vietnam, the joint venture of RMK-BRJ will complete its effort by the end of June 1972. In actuality, it appears the construction will be completed earlier with the exact date depending upon weather, acts of sabotage, and perhaps another offensive by the North Vietnamese. When the work is finally completed, the contract will amount to nearly $1.9 billion. Less than $20 million remain to be put in place at this time.

During the course of the construction, all types of projects were handled, such as waterfront facilities, airfields, logistic complexes, and community and personnel support facilities. Most recently, the emphasis has been upon the highway network within the Republic of Vietnam. In fact, the major items now remaining are several segments of road and major bridges in the Saigon area. On May 27, 1972, dedication of these major bridges will be made by the Vietnamese Ministry of Public Works to recognize a significant milestone in redevelopment of the country's highway network.

The contractor's personnel are rapidly phasing out. The number dropped under 10,000 in early April. By the end of June, only several hundred people will remain to wrap up the close-out and dispose of the remaining contract assets. Last August the contractor and OICC-RVN identified all equipment, both construction and support, held by



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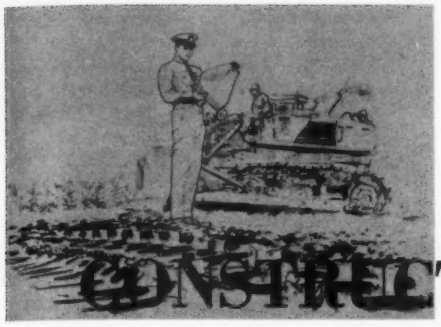
By RICHARD H. WELLES
Director of Specifications & Cost Division

Criticism has been directed against the Federal Government for issuing different sets of criteria for essentially the same types of construction. Pressures had been brought to bear on us by Congress, the A&E community, and the manufacturers. These people couldn't understand why each agency had to have a different way of describing technically what we want for concrete, roofing and the many common items that go into a structure — be it a structure for the Navy, the Army, the Air Force or another federal agency.

The federal construction guide spec program was devised to attempt to solve this problem and to achieve a uniform set of requirements for construction that could be used by all agencies of the federal government. *The program is underway with the goal of achieving this uniformity.*

Through the program we will be able to lump our resources together so that each one of the agencies involved in construction will be able to share a fair portion of the load. *In this manner we will be able to make maximum effective use of the resources that we all have, rather than duplicating each others' efforts.*



CONSTRUCTION — a new direction

By CAPT L. M. CAVENDISH, CEC, USN
Assistant Commander for Contracts

For the past several years, our primary construction effort has been the effort devoted to the Republic of Vietnam. There, our cost plus award fee contract has now reached a total of about two billion dollars. But it is coming to an end. By 30 June 1972, all work under that contract will be completed. Our interests are naturally shifting to other areas.

Outside the Republic of Vietnam, our total construction programs in the rest of the world are in a growth pattern. Not counting RVN, we put about $365 million worth of work-in-place in Fiscal Year 1971. We expect this to increase to $471 million in FY '72, and project about $485 million in FY '73.

Our main effort will continue to be the Navy's military construction program. This program alone was $234 million in FY '71, and will increase to almost $330 million in FY '73.

There are other important elements, however. One of these is the Family Housing Program which will continue to re-project a significant workload. From about $34.5 million in 1971, it will grow to almost $52 million in FY '73.

The work we perform for the Air Force will also continue to be an important load. This will represent about $50 million of work-in-place each year.

Other Customers

Also, we perform work for a multitude of other agencies. Some of these are: the Bureau of Fisheries, the Department of Indian Affairs, the Army, the Agency for International Development, the Department of Interior, NASA, NATO, the Coast Guard and a considerable amount of work in the non-appropriated funds area. This work is hard to project, but we did accomplish about $73 to $74 million in FY '71, and expect to perform another $78.4 million in FY '72. Right now we look forward to about $53 million in FY '73, but it is hard to predict precisely.

Within the Navy Military Construction Program, the makeup of the facilities to be constructed is of interest.

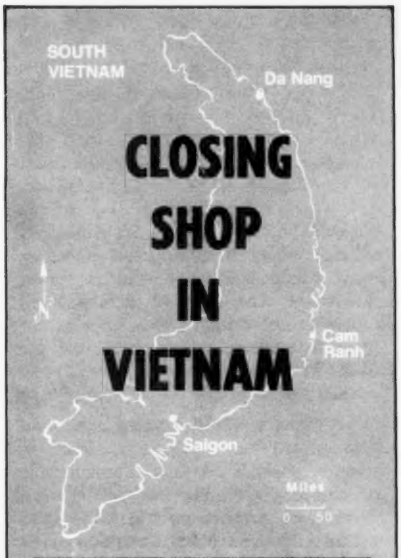
In line with Admiral Zumwalt's push to make the Navy a better place for Navy people to live and work, major emphasis has been placed on personnel support.

As I've already mentioned, approximately $50 million per year of work-in-place is expected in family housing. Within the military construction program, more than one third of the budget will go into such things as BEQ's, BOQ's and dining facilities.

WESTDIV Leader

Another large amount will go into the construction of naval hospitals. *The other large portion of the Military Construction Program, and one of very high visibility throughout the Federal Government, is the pollution aabatement program.* We expect about $50 million per year devoted to this effort. Further in the future, we have other large and important programs. For example, the ULMS (Undersea Long Range Missile System) may be very large indeed.

The foregoing describes our worldwide workload. Our actual contracting and construction are accomplished by our decentralized organizations, the Engineering Field Divisions. *The largest effort for FY '73 will be by the Western Division with almost $150 million,* and the lowest will be our Chesapeake Division at about $35 million. The other field divisions will fall between these extremes.



CLOSING SHOP IN VIETNAM

By CDR S. D. LOWE, CEC, USN
Division Director,
/Southeast Asia Construction

After ten years of construction in Vietnam, the joint venture of RMK-BRJ will complete its effort by the end of June 1972. In actuality, it appears the construction will be completed earlier with the exact date depending upon weather, acts of sabotage, and perhaps another offensive by the North Vietnamese. When the work is finally completed, the contract will amount to nearly $1.9 billion. Less than $20 million remain to be put in place at this time.

During the course of the construction, all types of projects were handled, such as waterfront facilities, airfields, logistic complexes, and community and personnel support facilities. Most recently, the emphasis has been upon the highway network within the Republic of Vietnam. In fact, the major items now remaining are several segments of road and major bridges in the Saigon area. On May 27, 1972, dedication of these major bridges will be made by the Vietnamese Ministry of Public Works to recognize a significant milestone in redevelopment of the country's highway network.

The contractor's personnel are rapidly phasing out. The number dropped under 10,000 in early April. By the end of June, only several hundred people will remain to wrap up the close-out and dispose of the remaining contract assets. Last August the contractor and OICC-RVN identified all equipment, both construction and support, held by

the contractor and issued this listing on a worldwide basis for screening and identification of requirements by others.

The disposition of claimed equipment takes place as it is no longer required for the contractor's effort. This prescreening of equipment and similar ones now underway on materials and on repair parts are perhaps the key to the successful close-out of the contract. The ultimate financial completion, however, may extend over a substantial period before the contract may be considered complete in the fullest sense. For example, the Spanish bases contract of the Mid-50's was completed only a few years ago.

To assist in the wrap-up of the cost plus award fee (CPAF) contract, a unique partial close-out technique was developed and implemented. Phase I, from inception through May 1970, was nearly $1,500,000,000. It enabled many of the old and accumulated problems to be identified and resolved. Phase II covered an additional $180,000,000. through September 1971 while the final phase will be less than $250,000,000.

With the completion of the RMK-BRJ contract, construction in Vietnam will not cease. There will be continuing requirements for facilities and construction in support of the Vietnamese and the Free World forces. Estimated construction workload in FY '73 is about $23,000,000., with considerable highway and bridge construction. This workload will be accomplished by lump sum contracts.

Along with the winddown of the construction in Vietnam, the OICC/RVN will be disestablished approximately in October of this year, or earlier, if the RMK contract is completed substantially in advance of current plans. After the OICC RVN disestablishment, a Director of Construction (DIRCON) will handle construction projects in Vietnam as will similar DIRCONs for Cambodia and Laos. Thailand, where the OICC will be located, will have two or more DIRCONs established to satisfy Thailand construction requirements.

The Trust Territories

A relatively new area of NAVFAC contracting interest is the Trust Territories of the Pacific Islands (TTPI). This entity is a trusteeship under the United Nations and has been administered by the United States. Previously NAVFAC has done restoration work for the Office of Emergency Preparedness (OEP), after the disastrous typhoons that frequent the area, the most recent work of this nature being during the past year.

In mid-1971, an agreement was consummated between the High Commissioner of the TTPI and our Pacific Division. Under this agreement NAVFAC will be the contract construction agent of the TTPI in all but the Marshalls District. (The Corps of Engineers has executed a similar agreement for the Marshalls where they are designated DOD contract construction agent.) Approximately $8,000,000 of construction work has been contracted by NAVFAC to date.

The most recent award was for a sewage treatment plant on Saipan in the Marianas. The remaining projects currently under contract, basically water and sewage lines and sewage treatment plants, are in Ponape, Yap, and Truk. In addition, the OICC/Marianas is administering a contract in Palau, also for water and sewage lines, which had been awarded by the Trust Territories Government. Substantial additional projects are expected in the near future, including a bridge at Koror, airfields at Yap, Palau, and Truk, educational facilities and hospitals, primarily at Ponape, and several projects at Kusaie.

NAVAL CONSTRUCTION FORCE

By CDR R. B. WILSON, CEC, USN
Director
Seabee Division

The Naval Construction Force, or the Seabees, is composed of active and reserve units and consists of the Naval Mobile Construction Battalions and their command chain, the Amphibious Construction Battalions assigned to each Fleet, and the Construction Battalion Units located throughout CONUS.

The reserve portion of the Naval Construction Force is composed of one brigade headed by a reserve Rear Admiral, nine regiments and eighteen reserve battalions.

At present in the active force we have ten active battalions, two Amphibious Construction Battalions, three homeport regiments and two operational regiments and seventeen Construction Battalion Units. The homeport regiments are located at the three Construction Battalion Centers and the operational regiments are located at Okinawa and Puerto Rico.

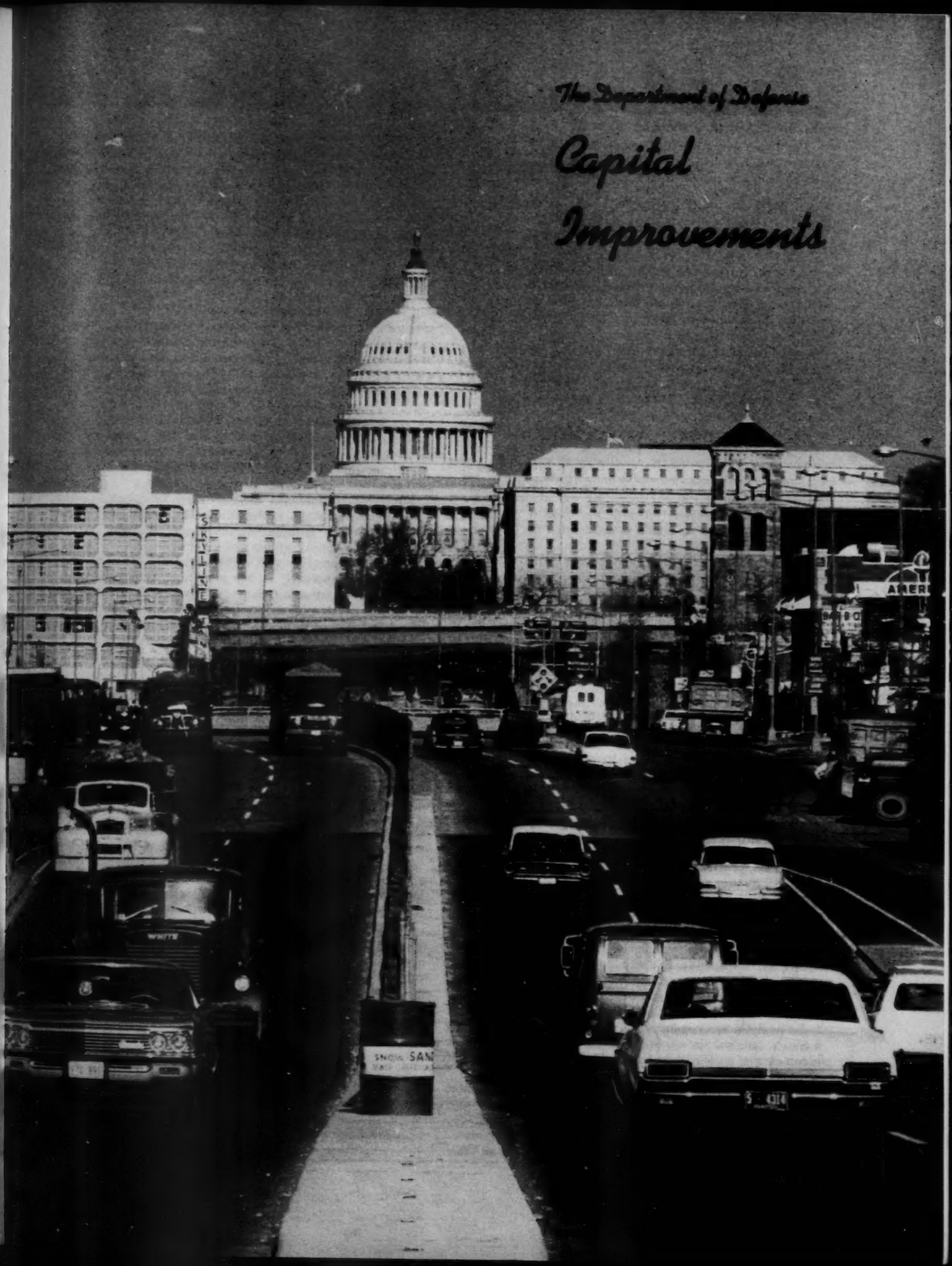
The active battalions are deploying to sites such as Diego Garcia, constructing a communications station in the middle of the Indian Ocean, and at Okinawa and Puerto Rico as the Pacific and Atlantic alert battalions. Other deployment sites include Guam, Spain and the Antarctic. There are also many details scattered throughout the world in such locations as the Philippines, Japan, Guantanamo Bay, Panama and Sigonella, Italy just to mention a few. To meet these varied construction requirements, we find Pacific battalions deployed to Europe, and an Atlantic homeported battalion on Okinawa as Pacific alert battalion.

The primary mission of the Naval Construction Force is to construct facilities for the Marines and the Navy in the event of a contingency or mobilization. To do this requires a readiness during peacetime to 'mount out', on short notice, both the active and reserve force.

For many years the reserve portion of the Naval Construction Force has not received the support from the Navy, OSD or Congress that is necessary to maintain a ready reliable troop construction capability. *During the past two years, there has been, however, increased emphasis on reserve readiness from the aforementioned.*

Some examples of what we are doing in the reserve program include placing active duty personnel on the reserve staffs and with reserve battalions. This creates a common bond between the actives and the reserves and greatly increases total force capability. We're getting equipment out to the reserve battalions to permit them to train with the same equipment they would use if called to active duty. The reserve battalions are now drilling and performing ACDUTRA as a unit and are being evaluated against active standards.

The seventeen Construction Battalion Units (CBUs) are great contributors to CNO's habitability program and are providing outstanding shore duty for our Seabee personnel. As part of the Self-Help Program and using personnel from local activities and ships, the CBUs are providing barracks improvements, recreation facilities, mobile home parks and many other long needed facilities.


The Department of Defense
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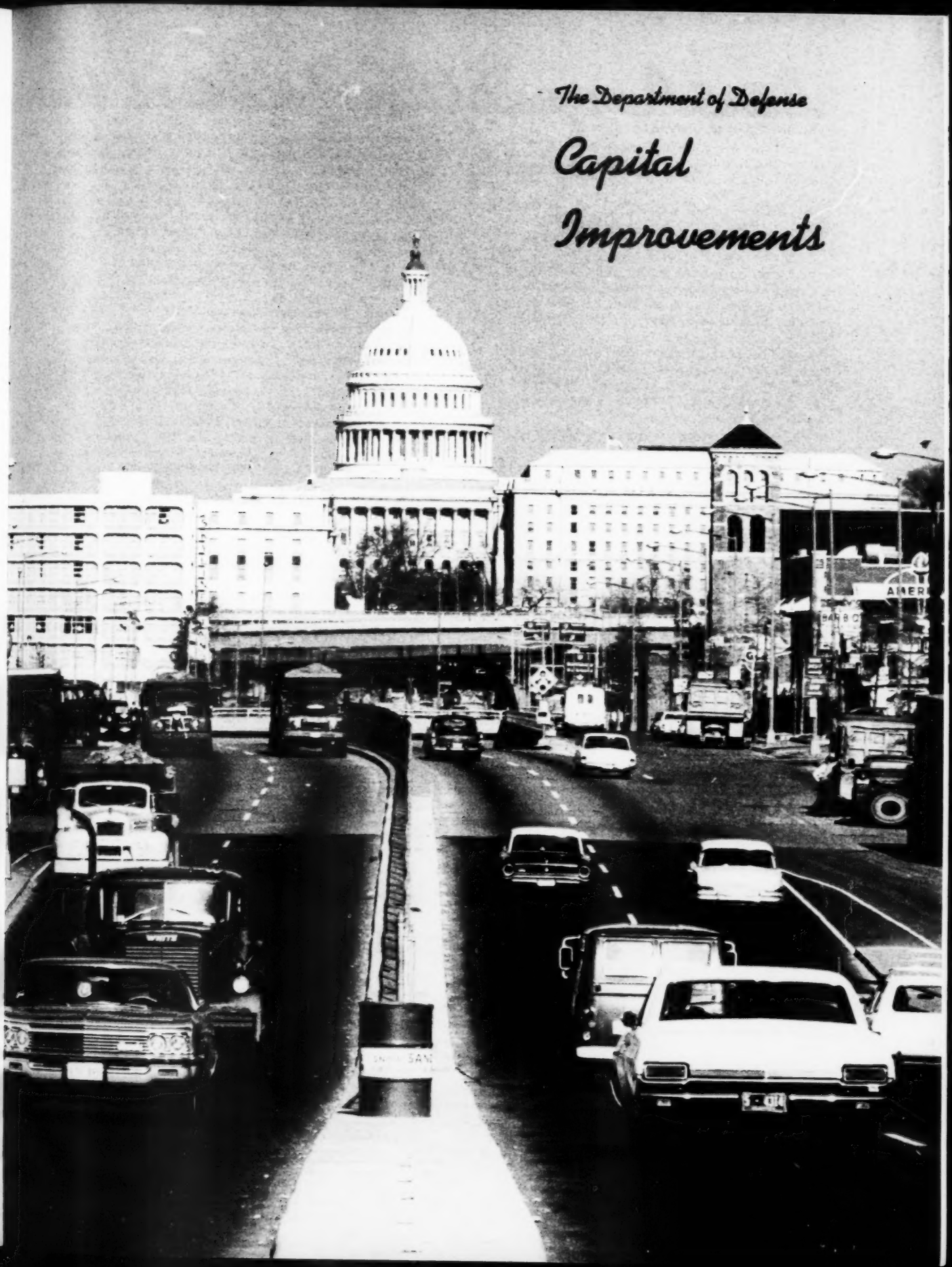
The Department of Defense
Capital
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Long Range DOD Facilities Plan

NATIONAL CAPITAL REGION

On June 18, 1971, Secretary of Defense Melvin R. Laird approved a long range plan for consolidation and development of improved Department of Defense offices and facilities in the National Capital Region (NCR) in and around Washington, D.C. The purpose of the plan is to define what the Department of Defense facility presence in the National Capital Region should be and to outline how this presence could be achieved. It provides the goals and guidelines toward which the Department will work, and against which individual projects can be evaluated.

The need for a Regional Plan existed for some time. Many of the department's NCR facilities are old, obsolete, and in need of replacement. The department is also faced with the need to consolidate functions and reduce facility expenses in order to meet the reduced funding levels of the post-Vietnam era. The plan proposes adjustments in the Department's facility presence including relocation and consolidation of functions and the redevelopment and vacating of facilities.

Analysis of Existing Space

The study began with an analysis of the existing facility conditions. The 220,000 civilian and military employees of the Department of Defense currently work in 88 locations in the NCR. One-half of these locations are leased and one-half are government owned. The majority of these facilities are located inside the Capital Beltway and are relatively small in size. The facilities located outside the beltway are few in number and in general are very large in size. Almost all of the leased space is located within the beltway.

Collectively, these department facilities contain 61,734,000 square feet of space. Approximately 41% of this total is devoted to administrative uses, and the remaining 59% is devoted to all other types of use. One-fifth of the existing space is classified as unsatisfactory.

An analysis was conducted to determine how well existing facilities satisfied the services' functional requirements. The accompanying article by Lt.(jg) W. D. Faught summarizes the conclusions and the means by which they were reached.

The space requirements are based on a 30% reduction in the department's June 1969 personnel strengths.

The total facilities requirement for the department is 57,342,000 square feet of space. Approximately 40% of this total is for administrative functions and the remaining 60% for all other uses. Approximately two-thirds of the administrative space requirements and three-fourths of all other space requirements can be satisfied by permanent and satisfactory facilities currently existing at sites designated as long range locations.

The plan proposes the use of approximately 41 million square feet of existing space and the construction of approximately 16,391,000 square feet of new space, distributed among all of the services at locations throughout the NCR. It is proposed that this long range plan be implemented over the next fifteen years. The total cost, including new construction and relocation costs, is estimated at $1.67 billion.

It was recognized at the beginning of the study that the department's administrative facilities would require special attention for three basic reasons. The first was that administrative space requirements account for approximately 40% of the total facility requirements, several times more than any other type of space. Second, that the existing administrative facilities were in general experiencing the greatest difficulties from age, obsolescence, and urban encroachment. Third, it was realized that the funding cutbacks that had started in 1968 and would be continuing for several years would have a significant impact on administrative facilities, both existing and proposed.

For these reasons, the administrative requirements were given special emphasis in this study. The remaining types of space have been grouped together under the heading "all other space" and dealt with as a single unit.

The long range plan must, by its nature, be broad and generalized in its approach. At the same time, recommendations for short or intermediate range actions must be very specific in nature. Because of this, a separate detailed analysis must be performed in order to generate and to validate shorter range proposed projects. In every case projects should be evaluated on the basis of their compatibility with the overall long range plan.

General Implementation Guidelines

In the short range time frame (1 to 5 years) projects should be generated which solve some of the more acute and immediate deficiencies in administrative space. The removal of temporary buildings and relocation of these functions to satisfactory new government owned or leased space should be given a high priority.

The fullest support should be given to projects in the Military Construction Program such as the Defense Office Building and the construction projects at the Harry Diamond Laboratory Annex, Washington Navy Yard, and Walter Reed Army Medical Center. These projects are urgently needed for functional and operational reasons and are completely consistent with the long range plan.

As time progresses, additional projects should be generated which will continue to give form to the long range plan.

In viewing any specific short or intermediate range facility proposal, the following general guidelines are applicable:

1. Leased space should be acquired in larger blocks of contiguous space than has often been done in the past. The fragmentation and consequent functional inefficiency which has been caused by the use of numerous small lease-holds should be avoided.

2. The need to evaluate the merits of any facility proposal on the basis of its effects upon the long range plan cannot be over emphasized. One of the primary functions of a coordinated master plan is to provide a yardstick for judging individual construction proposals.

3. An attitude of readiness should be maintained to take ad-

...For Washington

vantage of the possible development of currently unforeseen opportunities. This implies a certain degree of flexibility in implementation strategy as well as an acute awareness of community and other governmental actions.

As a follow-on to the planning effort, the following steps are proposed:

1. Aggressively seek implementation of the plan.
2. Establish an acceptable level of dedicated funding for the purpose of implementation.
3. Obtain appropriate executive and congressional approval of the plan concept.
4. Establish a Department of Defense effort to develop implementation strategies, proposals, and actions through the Military Construction Program, other funding sources, etc. A system of co-ordinated programming should be developed.
5. Reevaluate the existing master plans for Department of Defense facilities, and replan as required to coordinate with the overall plan.
6. Coordinate the plan with the individual community planning organizations.
7. Conduct an engineering evaluation of all existing facilities for further plan refinement.
8. Continue the maintenance and updating of the data bank upon which this plan is based, and make changes to the plan as necessary to reflect current conditions.

Navy Long Range Plan

Major Navy administrative centers are proposed at the following locations:

Navy Yard Complex	2,620,000 sq. ft.
Marine Corps Base, Quantico	2,080,000 sq. ft.
Suitland Federal Center	996,000 sq. ft.
Pentagon	402,000 sq. ft.
Defense Office Building	(To be determined)

The Washington Navy Yard is proposed as the ceremonial home of the Navy Department in Washington. The Marine Corps Headquarters functions are proposed for relocation to the Navy Yard Complex. The Marine Corps Base, Quantico would remain a major Marine Corps Base and training center. The Bolling/Anacostia Complex is proposed as the center of personnel support for the Navy in the NCR. The Naval Ordnance Laboratory, the Naval Research Laboratory, and the Naval Ship Research and Development Center are proposed to continue as major research facilities. The National Naval Medical Center is proposed to continue in its role as the center of the Navy's medical support in the NCR.

The construction of significant new Navy facilities is proposed at the following locations:

Navy Yard Complex	2,500,000 sq. ft.
Bolling/Anacostia Complex	1,782,000 sq. ft.
Suitland Federal Center	1,252,000 sq. ft.

The total new construction required to implement the Navy portion of the long range plan including the locations listed above is 6,730,000 square feet. The cost of this construction, including projected inflation, is estimated at $605,800,000. The cost of relocating organizations to their long range plan locations and out of Washington is placed at $49,237,000. Total cost of implementing the Navy portion of the long range plan is placed at $655,037,000.

...and how ChesDiv developed it

By LTJG WILLIAM D. FAUGHT, CEC, USN
Facilities Planning & Program
Coordination Officer, CHESDIVNAVFAC

Washington, D.C., with its fast growing ring of suburbs is experiencing the worst kinds of pressures and difficulties that are affecting cities all over the country. The metropolitan center, largely black, largely poor, and increasingly dispensable to the suburban population, is typical of other urban core areas in America today. There is too much crime, too many cars, too much pollution, and the impoverished dwellers seek a way out.

At the same time, urban renewal efforts have wiped away some downtown areas where the poor once lived and replaced the sites with apartments and townhouses which only the very affluent can afford. The displaced inner-city culture of poverty then has begun to thrust outward from the center and extend fingers into some of the surrounding suburban counties, pushing further and further outward the rings of middle class neighborhoods.

Commercial activity has become increasingly vigorous in automobile-oriented suburban centers, while downtown merchants find the going more and more difficult, a condition experienced by most other large American cities.

However, the Washington metropolitan area is very different from other urban districts. The entire economy of the National Capital Region (NCR) is dominated by a single employer, the federal government. If there is in any American city the chance to exercise some control over growth and development patterns, to *cause* change as well as to *react* to it, it should be in the nation's capital!

Uncoordinated, Unplanned Moves

The agencies of the federal government in Washington do not, however, tend to act in a cohesive, coordinated way in the development of their facilities. A study performed for the National Capital Planning Commission in 1970 revealed that federal agencies were relocating large blocks of offices to the suburbs; that furthermore, this represented a growing trend; and that all of this was happening in an uncoordinated, unplanned fashion.

In other words, the Federal Government in Washington was behaving in a manner similar to that of private industry in other cities — vacating downtown locations for more attractive sites in the suburbs. Federal agencies were unconsciously aggravating the problems of the region largely because there was little awareness of the need for coordinated regional planning of new facilities.

In September of 1969, the proper step was taken toward the achievement of this awareness. It was then that the Assistant Secretary of Defense (Installations and Logistics) promised to Congress that the Department of Defense would develop a consolidated regional facilities plan that would include all of the Armed Services and Defense agencies in the National Capital Region. This plan was to encompass *over 220,000 defense employees at 88 separate locations* and would form the 15 year framework for all DOD facilities development in the National Capital Region. OSD then proceeded to constitute a special committee with

(Continued on page 23)

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1. Aggressively seek implementation of the plan.
2. Establish an acceptable level of dedicated funding for the purpose of implementation.
3. Obtain appropriate executive and congressional approval of the plan concept.
4. Establish a Department of Defense effort to develop implementation strategies, proposals, and actions through the Military Construction Program, other funding sources, etc. A system of co-ordinated programming should be developed.
5. Reevaluate the existing master plans for Department of Defense facilities, and replan as required to coordinate with the overall plan.
6. Coordinate the plan with the individual community planning organizations.
7. Conduct an engineering evaluation of all existing facilities for further plan refinement.
8. Continue the maintenance and updating of the data bank upon which this plan is based, and make changes to the plan as necessary to reflect current conditions.

Navy Long Range Plan

Major Navy administrative centers are proposed at the following locations:

Navy Yard Complex	2,620,000 sq. ft.
Marine Corps Base, Quantico	2,080,000 sq. ft.
Suitland Federal Center	996,000 sq. ft.
Pentagon	402,000 sq. ft.
Defense Office Building	(To be determined)

The Washington Navy Yard is proposed as the ceremonial home of the Navy Department in Washington. The Marine Corps Headquarters functions are proposed for relocation to the Navy Yard Complex. The Marine Corps Base, Quantico would remain a major Marine Corps Base and training center. The Bolling/Anacostia Complex is proposed as the center of personnel support for the Navy in the NCR. The Naval Ordnance Laboratory, the Naval Research Laboratory, and the Naval Ship Research and Development Center are proposed to continue as major research facilities. The National Naval Medical Center is proposed to continue in its role as the center of the Navy's medical support in the NCR.

The construction of significant new Navy facilities is proposed at the following locations:

Navy Yard Complex	2,500,000 sq. ft.
Bolling/Anacostia Complex	1,782,000 sq. ft.
Suitland Federal Center	1,252,000 sq. ft.

The total new construction required to implement the Navy portion of the long range plan including the locations listed above is 6,730,000 square feet. The cost of this construction, including projected inflation, is estimated at $605,800,000. The cost of relocating organizations to their long range plan locations and out of Washington is placed at $49,237,000. Total cost of implementing the Navy portion of the long range plan is placed at $655,037,000.

By LTJG WILLIAM D. FAUGHT, CEC, USN
Facilities Planning & Program Coordination Officer, CHESDIVNAVFAC

Washington, D.C., with its fast growing ring of suburbs is experiencing the worst kinds of pressures and difficulties that are affecting cities all over the country. The metropolitan center, largely black, largely poor, and increasingly dispensable to the suburban population, is typical of other urban core areas in America today. There is too much crime, too many cars, too much pollution, and the impoverished dwellers seek a way out.

At the same time, urban renewal efforts have wiped away some downtown areas where the poor once lived and replaced the sites with apartments and townhouses which only the very affluent can afford. The displaced inner-city culture of poverty then has begun to thrust outward from the center and extend fingers into some of the surrounding suburban counties, pushing further and further outward the rings of middle class neighborhoods.

Commercial activity has become increasingly vigorous in automobile-oriented suburban centers, while downtown merchants find the going more and more difficult, a condition experienced by most other large American cities.

However, the Washington metropolitan area is very different from other urban districts. The entire economy of the National Capital Region (NCR) is dominated by a single employer, the federal government. If there is in any American city the chance to exercise some control over growth and development patterns, to *cause* change as well as to *react* to it, it should be in the nation's capital!

Uncoordinated, Unplanned Moves

The agencies of the federal government in Washington do not, however, tend to act in a cohesive, coordinated way in the development of their facilities. A study performed for the National Capital Planning Commission in 1970 revealed that federal agencies were relocating large blocks of offices to the suburbs; that furthermore, this represented a growing trend; and that all of this was happening in an uncoordinated, unplanned fashion.

In other words, the Federal Government in Washington was behaving in a manner similar to that of private industry in other cities — vacating downtown locations for more attractive sites in the suburbs. Federal agencies were unconsciously aggravating the problems of the region largely because there was little awareness of the need for coordinated regional planning of new facilities.

In September of 1969, the proper step was taken toward the achievement of this awareness. It was then that the Assistant Secretary of Defense (Installations and Logistics) promised to Congress that the Department of Defense would develop a consolidated regional facilities plan that would include all of the Armed Services and Defense agencies in the National Capital Region. This plan was to encompass *over 220,000 defense employees at 88 separate locations* and would form the 15 year framework for all DOD facilities development in the National Capital Region. OSD then proceeded to constitute a special committee with

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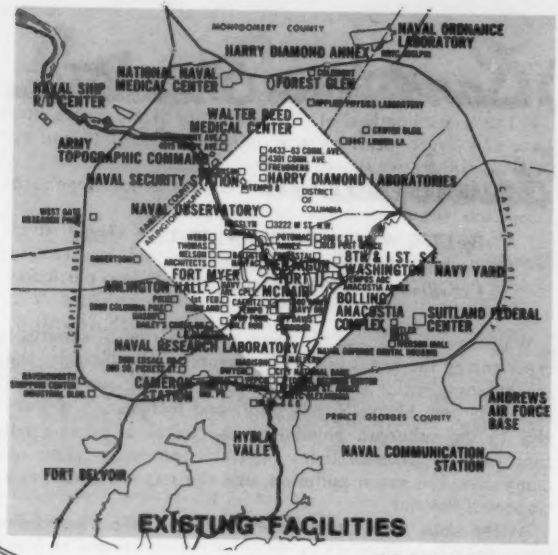

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- DEPARTMENT OF THE AIR FORCE
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- OTHER DEFENSE

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NAVAL ORDNANCE LABORATORY
NATIONAL NAVAL MEDICAL CENTER
FOREST GLEN
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WALTER REED MEDICAL CENTER
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ARLINGTON COUNTY
DISTRICT OF COLUMBIA
CAPITAL BELTWAY
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FORRESTAL
8TH. & I ST. S.E.
PENTAGON
NAVY YARD COMPLEX
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BOLLING
ANACOSTIA COMPLEX
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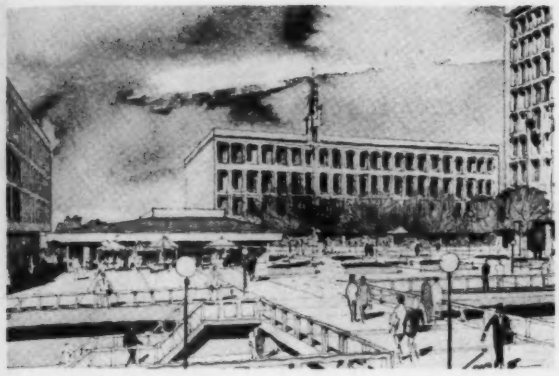
LONG RANGE PLAN COMPOSITE MAP



Washington Navy Yard Office Complex

(Continued from page 21)

representatives from each armed service which collected data on existing facilities and projected needs for every DOD organization and unit within the region.

In the meantime, the Chesapeake Division of the Naval Facilities Engineering Command (CHESDIV) had begun independently to pull together the elements of a regional facilities plan to serve both Navy and Marine Corps requirements in the Washington area. The degree of understanding which CHESDIV gained of Navy Department regional needs, plus the later success of the Navy plan in getting approvals were to lead eventually to the designation of CHESDIV as the executive agent for the overall DOD plan.

CHESDIV Planners Chosen

In October of 1970, CHESDIV was tasked by OSD to: a) develop the plan based upon the data collected by the special committee, b) maintain the data banks and keep it current, and c) update the plan periodically.

It was natural that the Navy should act as executive agent for such a plan. The Navy is the urbanite of the armed services; its people live and work mostly in cities (and are therefore involved directly in urban problems); and it is the most centralized service in the Washington area, having a number of downtown sites.

Because major cities tend to grow around good port facilities, the Navy is inescapably a creature of the urban milieu. It has a heavy vested interest in the condition of our seaboard cities. Also, the Navy usually finds some of its facilities located in the older, problem-ridden parts of town. Its people live in all parts of cities and share fully in the difficulties of contemporary urban living. These things are particularly true in Washington, and it was largely these factors which led to CHESDIV's early interest in regional planning.

Just five months after the initial OSD tasking, CHESDIV had completed the study, designed and had printed a seven color booklet documenting the results, and developed a system for storing and working the data upon which the plan was based. Secretary of Defense approval came on 18 June 1971. The plan was then forwarded to the White House and presented to the military departments. Later in the summer it was presented to Congress, the National Capital Planning Commission, and numerous community and business organizations.

The basic features of the plan were:

• The elimination of many small fragmented lease-holds in the Northern Virginia suburbs with proposed consolidation of most of these offices into new construction on Government owned land.

• The consolidation of the remaining lease space into fewer and larger locations with an upper limit of 10% of the DOD administrative space total.

• The designation of certain DOD sites as locations to be phased out within the 15 year planning period.

• Designation of the remaining sites as "long range locations". Certain of these areas were slated for more intense development than previously possessed. Two particularly significant sites in this category are the Washington Navy Yard and the Bolling/Anacostia tract, both downtown locations and both to be intensified as administrative employment centers. This was seen as one step in reversing the trend toward outward migration of Federal offices.

• Confirmation of the need for the proposed Defense Office Building, the so-called "Little Pentagon" to be sited at the Bolling/Anacostia tract.

The extremely short time period which was available for executing the planning study helped to determine the methodology used by CHESDIV in doing it, and dictated that many different tasks would have to be performed simultaneously. It was decided that only a big multi-disciplinary team could handle the job — in fact, a team composed of teams with delegated responsibility.

'Advocacy' Sub Teams

There was not time for direct participation by actual representatives of the various services and agencies, hence the concept of advocacy planning had to form the backbone of the study methodology. Although the team was constituted entirely from CHESDIV people, its members were asked to assume for the duration of the study a new role completely apart from their everyday CHESDIV jobs. They were to forget who they were and "be somebody else" for the few months.

Within the big study team there was an Army sub-team which was to "think Army" at all times. At the same time an Air Force sub-team was to vigorously protect the welfare of that service. And a Navy Department sub-team was to look out for just the Navy and Marines. A fourth advocacy team was also set up to protect the interests of all of the OSD agencies located in the National Capital Region.

By intentionally fostering this kind of parochialism, it was hoped that the teams would interact in a way analagous to that of their "real world" counterparts. The sub-group's area of study and recommended action were to be microcosms of reality.

Initially, the advocacy teams were asked not to even speak to each other concerning their individual studies. Their guidance was to "put on blinders" and seek for their "service" the best possible configuration for their facilities. Only after the teams had worked independently for some time, developing all sorts of biases and pre-conceptions about what their service had to have, were they allowed to talk to each other and exchange ideas.

The planning process was like a game, but a game patterned as closely as possible after the interactions of the real life organizations that it would plan for. Two more teams were also present in the "arena". One was the "community team". Its job was to adopt the same kind of highly parochial outlook toward DOD facilities, but this time from the outside looking in.

The last team was different — different because it was directed to try to be objective and impartial. It was the "planning team" and had the job of resolving all the areas of difference between the various advocacy teams. It was the referee. Another planning team responsibility was the prepa-

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Through an iterative process of proposal/rebuttal/decisitn/critique and revision, the study group began to evolve the final form of the plan's recommendations. Great importance was attached to the community advocacy team's point of view. At the outset the CHESDIV staff involved had realized the great extent to which DOD is a part of the city as a whole. Particular emphasis was placed upon the policies of the National Capital Planning Commission (NCPC) because of its regional charter for planning and because of its documented policies applying directly to the Federal Establishment in the NCR. Other civilian planning agencies were also consulted and their views were also often incorporated into the attitudes which the community team took toward DOD locations.

Surprisingly it was found that in most cases the community and service advocates' views toward DOD sites were in basic agreement. In some cases, both were reasonably happy with the way a property asset was being used. In other cases, both felt that property was being used in a way which was incompatible with the surrounding communities.

Often DOD land was desired by the community for recreational or other public use, and at the same time was deemed by the service teams to be no longer necessary to serve DOD needs. In some cases both sides felt that an expanded DOD presence was of benefit to all concerned.

But agreement was not present in all cases. When the service teams and the community team just could not seem to reach agreement, then the planning team referee stepped in and resolved the impasse.

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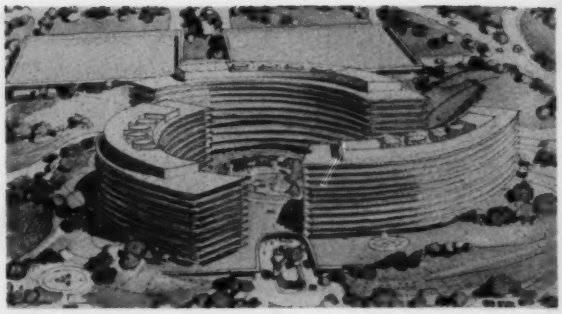

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The plan, which is designed for change, is now undergoing its first examination for update. Its major features will remain the same, but some specifics may have to be changed in response to changing needs. Already the Navy's Cheltenham site, originally to be phased out, has been redesignated as a long range site to solve a part of the defense housing deficiency. Other changes will occur as time passes.

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NAVFAC Headquarters Relocation Planned

Uncompleted Hoffman Building No. 2, in center of photograph, will be new site of NAVFAC Headquarters. Location offers convenient access to highways and close proximity to Naval offices at Crystal City and to the Pentagon.

The Naval Facilities Engineering Command is slated to move to a new headquarters building in Alexandria, Va., probably in the latter part of January 1973.

The new structure, designated Hoffman No. 2, will provide approximately one-third of its 13 floors for use by NAVFAC. The remainder of the space will be occupied primarily by Army agencies.

About the same area will be made available as now exists in the present headquarters building. The new office areas are to be more equally designed to eliminate some of the crowding presently experienced in some offices.

A 1000 person capacity cafeteria is to be located in the Alexandria site with nearby overnight accommodations for visitors. NAVFAC will share with Army tenants common type services such as a central mailroom, health facility, defense printing plant, communications center, security and guard system and a central supply room.

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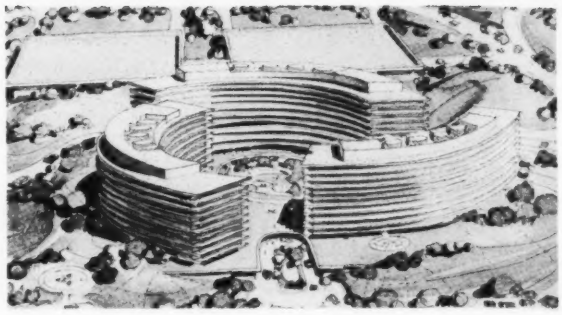

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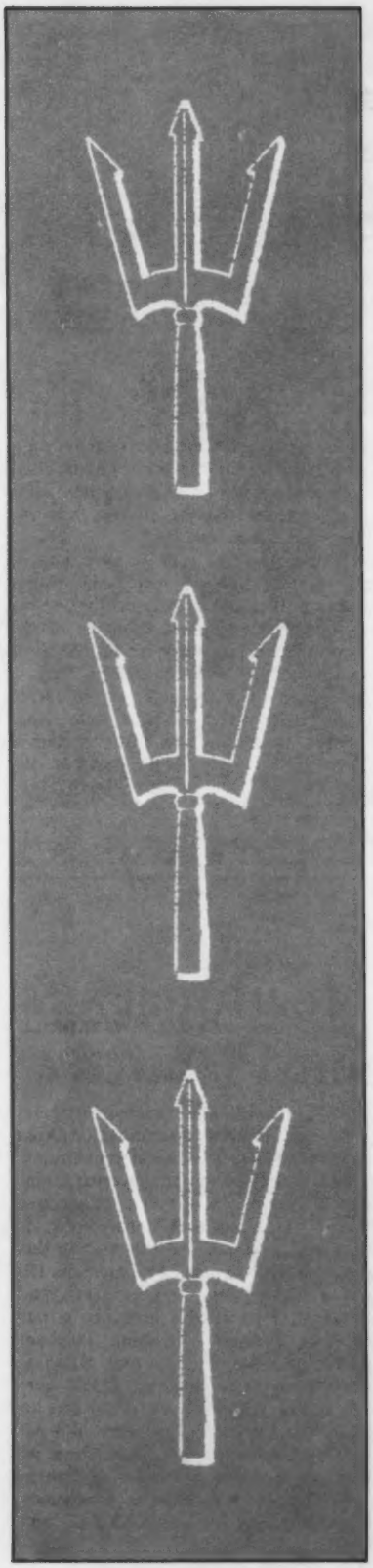


PRIORITY PROJECT

TRIDENT

undersea long range missile system

By CDR RICHARD A. LOWERY, CEC, USN
Director, ULMS Program

The undersea long range missile system program, (ULMS, but now designated as Trident), is one of the largest and one of the most important programs to be undertaken by the Navy and the country.

Trident is to be the follow-on program to the Polaris/Poseidon program, the submarine system which our country maintains as a part of strategic warfare deterrent.

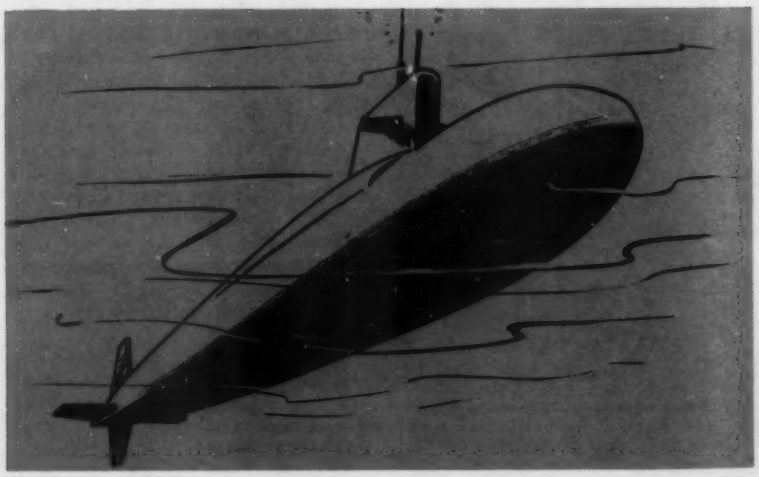
The program to build the system will be very large in terms of effort expended, not only for building the submarines and the missile systems, but also for completing the shore facilities to support those systems.

Of course, the construction of the shore facilities is the responsibility of the Naval Facilities Engineering Command. It's our job in the Trident program office (Code PC-5), to coordinate, program and ultimately supervise the overall construction of these shore facilities which will support the new system. It is a most important program and will result in a "crash" schedule as far as we're concerned. The program office has been given a charter which designates Trident as the number one project to be supported by NAVFAC.

The new office will function in a coordinating capacity and will be asking other sections of the Naval Facilities Engineering Command to lend assistance.

The particular office in PC-5 is not intended to become sizable. Tasks will quickly exceed the PC-5 capability and other sections of NAVFAC will be necessary to support the program. The coordination required is PC-5's reason for existence.

When Trident is operational it will serve as the backbone of the three strategic systems by which we will maintain a war deterrent.



The ABFC System

By LCDR A. S. POOLE, CEC, USN
Director,
Material Management Division

Today, as never before, the Navy is being asked, and is expected, to do more with less. With limited resources, good planning becomes critical and planning is what the Advanced Base Functional Component (ABFC) system is all about.

The predesigned components of this system permit logistics planners to put together the material and manpower needs required to provide support functions for the fleet at advanced bases in the event of a contingency.

These requirements, stated in fleet operational plans, affect NAVFAC in many ways. By reviewing the components called out, we can tell what kind of facilities will be built, how many Seabees will be needed, where they will go, what contractor effort will be required, and how much prepositioned war reserve hardware within our area of cognizance will be needed.

But all of this is based on the quality of the designs within the ABFC system. If these designs do not reflect current tactical concepts, current engineering practices, or current material technology, our logistics posture and planning cannot be responsive.

Our interest, however, goes beyond quality in facility designs alone. As the Chief of Naval Materials' systems engineer, we are responsible for the coordination of input from all systems commands and bureaus. *Essentially we run the program.*

During the past year we have devoted significant effort to increasing awareness of the importance of the ABFC system in the highest echelons of the Navy. Our effort is paying off. As a result, we look forward to FY '73 as a period in which the necessary resources will be devoted, in all system commands, to making the ABFC system a responsive and reliable asset of the fleets.

DISASTER RESPONSE

By JACK W. TERRILL
Director, Disaster
Preparedness Division

Most of us are generally aware of the traditional responses of the Navy in all disaster situations. But are we aware of just what is involved in being able to effectively respond to a disaster situation? There must be personnel designated to respond. These personnel must have the proper equipment and know exactly how they fit into the District Commandant/Area Coordinator's Disaster Preparedness Plan. In short, we must have organization, training and inspection to be sure there is, in fact, an adequate response capability within our Navy.

The Naval Support and Mobilization Plan spells out the basics. OPNAVINST 3440.13B reiterates the affixing of responsibilities and the policy. NAVFACINST 3440.12 provides organizational guidance. The responsibility rests with the District Commandant/Area Coordinators to have an effective force. The Naval Facilities Engineering Command, serving as CNO's "Executive Agent" for Disaster Preparedness, is providing guidance and direction to this program. Our Disaster Preparedness Division is supplying this guidance and direction. Part of this guidance is our Disaster Recovery Training Program which provides Mobile and Resident training to approximately 40,000 personnel per year. We are continuing to assist the Corps of Engineers in Civil Defense Shelter Surveys. In addition, we maintain a viable continuity of Operations Plan which includes an Emergency Relocation Site for key NAVFAC personnel.

EXECUTIVE ORDER'S IMPACT ON
NAVY REAL ESTATE

By ERNEST SWANSON
Director, Acquisition
& Disposal Division

Executive Order 11508, which was signed by President Nixon on February 10, 1970, has had a major impact on all federal agencies and their land disposals, particularly within the Department of Defense and the Navy. The order provided for the identification of unneeded federal lands and tasked each agency with a "vigorous and complete survey of all the property under their control."

The survey covers three areas: lands that are not utilized, lands that are under-utilized and lands not being put to optimum use. The most significant feature of this identification concerns the non-utilized lands. It is a presidential directive to dispose of lands that are not being used.

Previously, the method of identifying excess lands in the Navy was done through the excess facilities plan. Under that procedure the activity commander would identify unneeded land and would recommend its disposal. His recommendation would then be staffed through the chain of command through the major claimant, through the district commandant to the local geographical EFD, to NAVFAC and then to CNO.

This procedure was lengthy and time consuming. It took several months to get this approval all the way through the chain and then back down again to the activity from CNO.

The President set up the Property Review Board because he felt these lands were not being identified rapidly enough nor in the quantity he envisioned when he signed the executive order. So he charged GSA to make surveys. GSA started with the Department of Defense because the Department of Defense is the largest holder of lands. GSA made these surveys and under their procedure, after they had made the survey, DOD had 30 days in which to respond as to whether they agreed or disagreed with the report. Thus, the activity, the major claimant, the commandant, NAVFAC and CNO, had to perform a review — that used to take months — in a 30-day time frame. Now that time frame has been compressed even further.

GSA was not able to do as many surveys as the President's Property Review Board desired, so they requested DOD, last year, to start making additional surveys.

In March of this year, this program was accelerated once more with each of the military departments also making surveys. This now amounts to some 13 surveys per month that need to be made, compressing the thirty day response time to twenty days.

Once these lands are identified and the Navy has agreed to declare them in excess, the '07 shop' comes in. We must report those properties over $50,000 in value to the Armed Services Committee in accordance with existing law.

The sum total of all this is to remove from Navy inventory those lands and improvements that are no longer needed. This can and does result in some savings to the Navy in that we are relieved of maintenance of unneeded properties. Activity commanders, historically, are reluctant to release any land that is under their control because they always have plans to do something with it.

Another relatively recent policy which has affected the Navy's real estate acquisition procedures is the National Environmental Policy Act of 1969 which provides that any action on the part of a federal agency that could have an effect on the environment requires preparation of an environmental impact assessment or an environmental impact statement.

DOD has directed that all land acquisition is classified as a major impact on the ecology because obviously we're acquiring land to support construction of something that is needed by the Navy, or as a buffer zone in the case of ammunition storage.

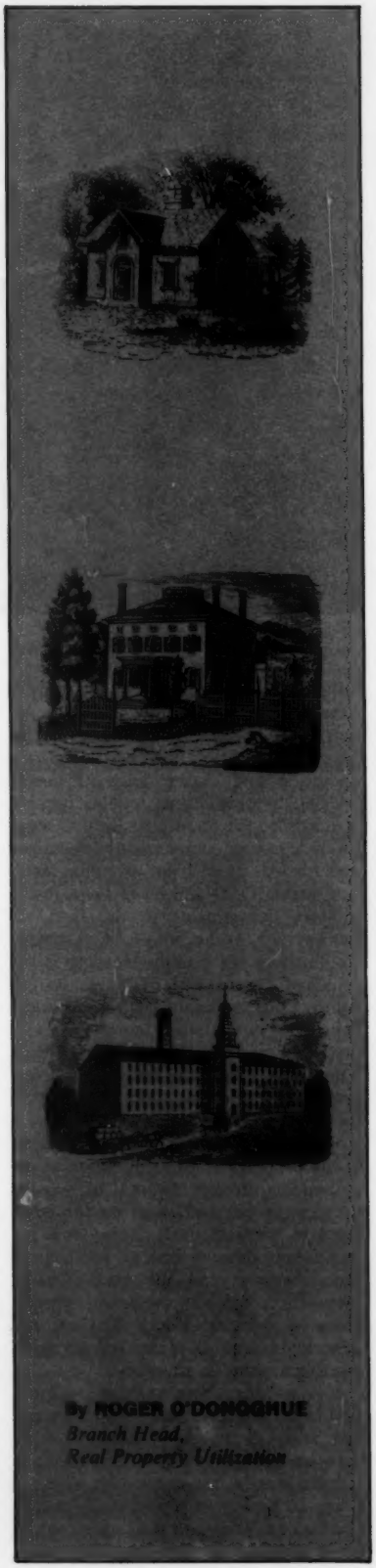
Therefore it is necessary that an environmental impact assessment be made. These can be formal or informal. With informal assessment, as in the case of a buffer zone, there would be minor impact. However, a major acquisition such as the Sewells Point acquisition at the Naval Base in Norfolk, Va., will have a major impact on the ecology of the area because of our construction and our use of the land after it has been acquired.

If we do make this environmental assessment and the assessment determines that it has a major impact, then an environmental impact statement is prepared. This statement lists all the things irretrievably lost, as well as the gains that could be made through our construction, on the ecology and the environment of the area.

These environmental statements are then submitted to CNO and, if approved, are sent to the Council on Environmental Quality. The council will then submit the reports to all agencies, state and federal, for comments. It is then resubmitted to Navy. With these comments we then review it, revise our statement, and resubmit it to the council.

The importance is that in the past, when we acquired some property through condemnation, owners sometimes attempted to block our acquisition by filing a motion with the courts claiming that we do not have the right to take it. In the past, the Government has been successful in blocking these claims. When the Secretary of the Navy determines that land is required for Navy purposes, the Court does not refute his decision. However, since the Environmental Policy Act, landowners have in many highway cases been able to block the acquisition because the agency has not filed an environmental impact statement. Therefore, in all our acquisitions we must have statements that can support the decision that was made to acquire the land.

THE PRESERVATION OF SIGNIFICANT HISTORICAL SITES



By ROGER O'DONOGHUE
Branch Head,
Real Property Utilization

Executive Order 11593 of 13 May 1971, entitled "Protection and Enhancement of the Cultural Environment" states the policy that *"The Federal Government shall provide leadership in preserving, restoring and maintaining the historic and cultural environment of the Nation."* The policy statement places the responsibility on federal agencies to preserve, restore and maintain "federally owned sites, structures and objects of historical, architectural or archaeological significance" under their jurisdiction.

When the specific responsibilities assigned to federal agencies by the executive order are considered, it is seen that there are three distinct types of actions which the Navy must perform. We must identify and nominate for inclusion in the National Register of Historic Places those Navy-owned sites, structures and objects of historical, architectural or archaeological significance; we must preserve, rehabilitate, or restore such registered sites to professional standards; and we must plan our new facilities or our alterations of old ones so as to cause the least possible adverse impact on such registered sites.

The first of the functions, to identify and nominate, has already been undertaken and the first step in that direction taken. A list of installations 50 years or older, taken from the real property inventory, has been furnished the National Park Service and, by states, to the state liaison officers.

This is merely a crude beginning giving a general idea of the scope of the program and where to look for possible nominations. We must now refine the process working at station level to identify specific sites. This will involve considerable research into the historical, architectural and archaeological reasons for the cultural significance of the site.

When it is determined that a site should be nominated to the register, considerable material must be assembled for the nomination, a precise description of location, full description of the site or structure, photographs of its present condition, and justification of the nomination.

The maintenance function under the executive order is still in abeyance at this time. The identification function must, of course, be performed first. Also the executive order places on the Department of the Interior the responsibility of developing information concerning professional methods and techniques for preserving, improving, restoring and maintaining historic properties. We are now maintaining numerous historic structures according to Navy's criteria and needs. Other such structures for which the Navy no longer has a requirement are being maintained little, if at all. Funding, particularly for the latter, will be a problem but will be necessary to comply with the Executive Order. DOD will soon request the Navy to identify the amount needed for such purposes to support a FY '74 budget request.

The planning function is less easy to identify, but we must plan in such a way as to cause the least adverse affect possible on historic properties whether presently Navy-owned or not. The executive order does not forbid the demolition or substantial alteration of historic properties, but requires that the Advisory Council on Historic Preservation have the opportunity to comment on such proposals. If such property is to be demolished or substantially altered, a record including measured drawings, photographs and maps, must be made and deposited with the Library of Congress.

As indicated by its title the executive order, the program should be considered a part of the overall environmental picture and as such one that will grow and expand. It will be a part of the permanent scene.

Homes

Family Housing is unique as a NAVFAC program in several ways: (1) Other NAVFAC programs administer functional areas, Family Housing acquires and manages a product; (2) Unlike other facilities, NAVFAC funds the operation and maintenance of family housing, worldwide, as well as funding acquisition; (3) Family housing is separately legislated and vertically organized and funded, apart from all other facilities, within OSD and down through the military departments to the field activities; and (4) the NAVFAC Assistant Commander for Family Housing is the principal Department of Navy testifier before Congressional Committees in defending requests for legislation and funds for support of all Navy family housing facilities and programs, irrespective of the major claimant or activity served.

We are responsible for management of the program from formulation of requirements through disposal of housing no longer needed. During the peak years in Vietnam, little money was put into family housing and we fell behind. Since Secretary of the Navy Chafee took office, and with the added impetus given by Admiral Zumwalt, there has been significantly increased attention given to housing at all levels.

It is an area where we have a responsibility to our servicemen which we can and must discharge in better fashion than we have in more recent years. It reflects a need, satisfaction of which is a key to personnel retention. Secretary Chafee cites adequate housing as one of three principal keys to retaining qualified personnel in an all volunteer force. To this end he started a 5-point program in 1969 which we have been pursuing. This program consists basically of increasing the supply of housing available to Navy and Marine Corps personnel by using a number of diverse approaches and means.

In the 1969-73 military construction program we have gone from constructing 750 units to 4,600 units per year. In the leasing program, we have gone from some 1,800 units under lease to over 5,000 targeted in 1973. We have tried to take maximum advantage of programs of the Department of Housing and Urban Development (HUD), to the extent that we have participated in legislative efforts and other initiatives which have now given us some 10,000 units occupied in HUD and local housing authority units.

We also have some 6,000 units of special military preference housing which is under construction or in processing for construction under the HUD Section 236 program. A fourth means that we have tried, recognizing that we need more housing in a hurry, is installment buying by using private funds for the initial acquisition. This has not progressed too well. It is similar to the Capehart housing in concept where we get the houses now and pay for them as we use them.

The proposal was supported by the Office of the Secretary of Defense but the Office of Management and Budget did not consider that they should go forward with it at the present time.

The fifth and final approach in the secretary's 5-point program is related to housing, but is more directly in the compensation area. *This is called "variable housing allowance" which we have been advocating for several years and to which the Secretary of the Navy has given his strong support.* By this means, a man going to one area or another, would have a different housing allowance based on the cost of housing in that area, rather than a fixed allowance in lieu of quarters as at present. This is not a "front-burner" item at this time because of other compensation efforts and initiatives which have priority over it. However, it is one that is still discussed as having great potential.

Most of the effort in the past several years has been on a quantitative approach to housing, solving our deficit problem. At one point we had a deficit of 50,000 people who were inadequately housed. We have narrowed this deficit to about 25,000 now. While we did not neglect the qualitative effort during this period, we are now giving more attention to the quality of housing.

We are trying to reduce our backlog of essential maintenance in housing, which is in excess of $30 million, and the backlog of needed improvements which is over $100 million. We're coming to grips with these, and are making substantial progress which we feel will continue for the next few years.

We also have very high hopes of getting what we call "inadequate public quarters legislation" which would take those units which are, in fact, marginal

For Navy Families

By CAPT G. A. GOETZKE, CEC, USN
Assistant Commander
For Family Housing

or substandard, and permit us to rent them at fair value, or at a reduced forfeiture of the member's basic allowance for quarters (BAQ) instead of full forfeiture of BAQ.

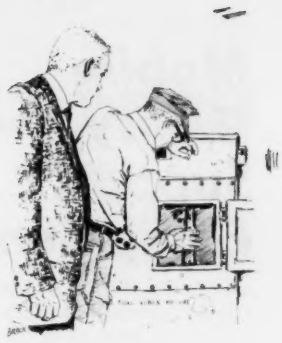
At present, lack of adequate housing is one of the most critical factors which impacts adversely on the morale of the serviceman and his family. The service family today, like their civilian counterpart, has rising expectations of what is needed in a family dwelling for comfortable modern living.

We find the family is getting more and more involved, and we are trying to involve them more and more in the family housing problem and its solution. The views of the wife and other family members on what service life offers them, or demands of them, is a major influence on the attitude of the service member. We therefore actively seek their opinions, their attitudes. We have the wives sit in on our design briefings; and we have received some valuable suggestions from these prime users of our product.

So in summary, we have come a long way in family housing in solving our quantitative problem, and can foresee enough housing for our major base complexes within a reasonable time frame. We are beginning to gain momentum in solving our qualitative program.

However, there is no basis for complacency. We must continue zealous and militant until this most important personal need which confronts Navy families on a continuing basis is fully met.

MAINTENANCE MANAGEMENT FOR SMALL ACTIVITIES



By BERNARD T. LEWIS
Supervisory Industrial Engineer

One of the most important technical functions of the Naval Facilities Engineering Command is the operation, maintenance and repair of the Navy's shore facilities.

The primary goal is the optimum use of resources, a challenge which, broadly speaking, requires effective support and responses to the commands and fleets at the least cost. Naturally, much of our facilities management effort at NAVFAC is aimed at large public works departments and public works centers, which support the majority of Navy facilities. However, facilities support at small activities is still an important problem.

Individually, small activities represent a very small share of total Navy resources. Collectively, small activities represent approximately 27 percent of the total of all field activities with assigned public works personnel. Their plant value is over $3½ billion. The maintenance and operations funds expended exceed $42 million per year. The investment must be protected by a planned maintenance program.

To assist in this problem area NAVFAC MO-321.1 was developed. It is a condensed and simplified version of the management principles outlined in NAVFAC MO-321, *Maintenance Management of Public Works and Public Utilities;* and NAVFAC MO-322, *Inspection of Maintenance of Public Works and Public Utilities* and other management manuals.

The systems described in NAVFAC MO-321.1 have been adapted specifically to the small activity which does not have the specialized staff positions, automatic data processing equipment, or complex inter-relationships that exist in medium or large-size public works departments.

MO-321.1 was provided to assist public works officers at small activities, with limited staff, to implement and maintain basic maintenance management systems developed and promulgated by NAVFAC, and to integrate these principles into the day-to-day decision-making process of the public works department. A small activity is one with a public works department with less than 75 personnel in the maintenance and utilities divisions, combined.

NAVFAC's maintenance management system is not complex and it does not embody principles that are unattainable. Frequently day-to-day routine tasks appear to be overwhelming, when in fact the principles involved are no different from those used by most people in their day-to-day personal business. You earn a certain salary out of which the fixed expenses such as rent, car payment, and the like are set aside. Then you decide how to spend the remaining money. Chances are that the things that you want to do and buy require more money than is available to spend. A decision must be made concerning relative importance and cost. An estimated price is placed against each desire and priorities are placed against each need. This, in simple form, is maintenance management — planning the resources available for use against a listing of all public works maintenance and operations needs.

In summary then, to obtain better use of available scarce O&MN resources, public works officers at small field activities must use the maintenance management principles embodied in this manual.

Mobile Utility Support Equipment

means

MORE 'COLD IRON' DAYS FOR FLEET

By NORMAN MAWDSLEY
Branch Head,
Utilities Management

"MUSE" is mobile utility support equipment. The chief of naval operations chartered this MUSE program in 1963, basically for three purposes. One of these was for emergencies, where there was a failure of a piece of equipment affecting the operational capabilities of the station.

The second was for any natural catastrophies that could occur, such as hurricanes and typhoons and the third was for any unplanned temporary requirements. Needed was something that was rapidly deployable. MUSE was, therefore, configured for mobility, flexibility and its capability of being able to respond in a timely fashion.

It had to be self-contained so that it didn't require housing and could be self-sustaining. Our latest units are air and highway transportable. All required is fuel and people to operate it.

This MUSE program was expanded sometime in the 1965-66 time frame, with the Southeast Asia buildup. MUSE proved to be very adaptable in meeting the needs of expeditionary forces.

As a result the MUSE charter was modified to provide for use during a contingency operation. Along with the U.S. withdrawal from Vietnam the MUSE equipment has been removed.

However, a new need has developed, the cold iron program for the Navy. Cold iron allows a ship, when it comes into port, to shut down all its on-board facilities and the shore provides electricity, water and steam. This allows for maintenance and necessary overhauls to be performed. There is a second advantage to the Navy, that of allowing more liberty man days. Also, it is more economical to provide utilities, electricity, steam, water, etc. from the shore than generating it on-board the ship.

A study was conducted to determine the "cold iron" needs worldwide by fixed facilities. The study showed that additional utilities facilities on existing piers and those utilities that would be needed for the new piers, would cost in the neighborhood of $400 million, which was unrealistic within the current Navy/DOD funding constraints.

Adm. E. R. Zumwalt, the chief of naval operations said: "Let us look at providing thirty day priority cold iron status for ships returning from extended deployment." So they did, and the cost had a high price tag. In reply to CNO, CINCPACFLT and CINCLANTFLT proposed that with the time lag for permanent facilities construction, we find an interim support using mobile utility support equipment (MUSE).

From this proposal CNO tasked CNM and NAVFAC with a study to determine whether it was feasible to use MUSE in providing interim or temporary support of cold iron.

The study was conducted last January and it proved that of the 71 permanent cold iron support projects that were in the program objective, 28 of which involved construction of new piers and dredging, MUSE was feasible of supporting 30 of the remaining 43.

Unfortunately, 80% of MUSE inventory was already deployed in meeting other requirements. It was possible to provide 85% of electric and steam deficiencies with MUSE within three years, but it would cost about $12 million to purchase new MUSE equipment.

NAVFAC put this program together and submitted it to the CNO and, on the 29th of November, 1971, he approved the program and deployment of the MUSE units in support of specific cold iron projects. Buying this equipment to provide this support is now in progress.

The MUSE program is under the overall and acquisition management of Code 102 in Headquarters, where planning and procurement actions relating to interim cold iron support take place.

Operational management for equipment deployments, engineering support and coordination of equipment procurements are controlled through our MUSE field office located at CBC Port Hueneme.

Responsibility for getting all procurement underway is in the hands of NAVFAC Contracts, CBC Davisville, who provides all our contract support for this program.

With the expenditure of $12 million, 322 thousand liberty man days per year, each year, will be provided as long as this equipment is in use. Fleet operational readiness will be improved. Besides the liberty man day payoff for retention of personnel, the Navy can accomplish more ships' maintenance earlier than originally planned.

The Care And Repair Of SHIPYARD CRANES

By JOHN C. McLAUGHLIN
Head, Maintenance Management, Transportation Equipment

NAVFAC Headquarters and our Engineering Field Divisions were deeply involved during 1971 in the Naval Ships Systems Command's (NAVSHIPS) program to improve the maintenance management of shipyard weight handling equipment (cranes).

The objective of this intensive program is to improve the safety and reliability of equipment. The primary focus has been on cranes engaged in the support of the navy's nuclear propulsion program and in particular to those large shipyards cranes (50 to 150 ton capacity) engaged in the critical phase of refueling the Navy's fleet of nuclear powered submarines.

In 1970 NAVSHIPS asked NAVFAC to write a "get well" prescription for its cranes. The cranes were in a questionable state of readiness and were suffering from the normal wear and tear of advanced years and an unwritten policy of deferred maintenance over an extended period.

The response to NAVSHIPS was the development of a joint NAVFAC/NAVSHIPS instruction which prescribed the actions necessary to restore and maintain the cranes to a reasonable level of safety and reliability.

NAVSHIPS in addition asked NAVFAC to conduct, on a continuing basis, annual audits of the maintenance management of cranes at all 10 naval shipyards and report to them our appraisal of the results.

The efforts and resources of the six nuclear shipyards as well as our EFD's were directed in 1971 to getting the cranes designated for nuclear support certified by the shipyards as meeting the requirement of the NAVFAC-/NAVSHIPS and such certifications validated by our EFD's. During 1971 some 210 cranes were designated for nuclear support by the shipyards. Some 161 or 77% were certified by the shipyards. Of these 147 or 70% were validated by our EFD's. This was a remarkable achievement by each of the nuclear shipyards with the assistance of our EFD's.

During 1971 our EFD's also completed the first annual audit of the maintenance management of all cranes at each of the 10 shipyards. The audit was primarily oriented to looking into the well being of the general purpose cranes rather than the nuclear cranes, which because of the EFD validation, were under constant surveillance.

The general purpose cranes number, at last count, some 4,300 machines located in the 10 shipyards. This includes all types from 1-ton hoists to 350-ton floating cranes. The audit consisted of an in-depth inquiry into maintenance organization, procedures and documentation.

The audit also included a complete condition inspection and full load test of a representative sampling of general purpose cranes at each shipyard to test the quality of the maintenance actions. Generally the audits disclosed, as was expected, that the general purpose cranes had not received the concentrated attention in 1971 that had been directed to the nuclear cranes. However, progress was being made.

During 1971 Captain R. E. Dunnells, the NAVFAC inspector general, the author and Paul Zorich, accompanied the NAVSHIPS inspector general on the command on-site inspections of three of the nuclear shipyards.

We saw first hand the all-out effort of the shipyards to restore the nuclear cranes to a safe and reliable condition.

The crane program has achieved in 1971 results, and is progressing at the rate desired by NAVSHIPS

Areas of program refinement and improvement will be identified and implemented in 1972.

And Worldwide Inspection Of SHIPYARD TRACKAGE

By GEORGE D. THOMAS
Transportation Equipment Division

Considerable interest in track inspection developed when the findings of the Pearl Harbor report were reviewed at NAVSHIPS Headquarters. Some of the facts and findings, when related to other shipyards, indicated that the transport of nuclear refueling loads over their tracks was probably, at best, not very prudent.

Machinery was quickly set in motion to inspect the crane and railroad tracks at all Naval shipyards.

Complete inspection reports on all shipyard trackage are expected to be accomplished by the end of September.

The findings, so far, indicate that other Navy commands with rail trackage can profit by this inspection program. NAVFAC has offered assistance to NAVORD and NAVSUP for the inspection of railroad track systems at their activities. As the Navy has some four thousand miles of railroad track a tremendous job lies ahead.

The inspection program has much potential. Factual reports will be provided and based on these, appropriate recommendations will be made for the correction of the deficiencies.

The railroad and crane rail inspection program is one example of what expertise and experience can do.

Because of difficulties encountered with crane operations at the Pearl Harbor Naval Shipyard, NAVFAC sent representatives, experienced in track systems to that activity to determine the scope of the problem and to develop the best solutions. To fully define the problem a careful examination and inspection of the crane rail system was made. And an ultrasonic test, to determine internal fissures and defects, was conducted.

Resulting from this systematic inspection, serious deficiencies were found in the crane rail system. For instance, approximately 70% of the crane rail, which carries the tremendous weight of the cranes, had internal fissures or defects, and replacement is required.

Some of the defects were the result of the heavy loads applied to the existing rail, causing the head of the rail to roll. As a result of this inspection, a comprehensive rail repair and replacement program was developed for the Pearl Harbor Naval Shipyard.

By CAPT RICHARD E. ANDERSON, CEC, USN
Asst. Commander For Facilities Planning

The Armed Forces generally have been very heavily impacted by a switch in priorities in the United States to things which enhance the quality of life and things which enhance the environment. There is tremendous political pressure on the Department of Defense to get out of certain areas of the country where we now carry out our missions, get out of land that we hold and stop doing things that might affect the environment. We have to have a planned and reasoned recognition of this change in thinking and change in priorities so that we can respond accordingly. The people in Code 20 play a very important role in adjusting the Department of Defense land and facility requirements to this new set of priorities and fitting us into the total environment picture, which seems to be emerging in the United States.

This new challenge in the planning field is being met by regional and functional planning. These two types of planning have been a new departure in NAVFAC planning. They require a complete team effort of the whole Code 20 organization. They are very important to the Navy and they're important to the Department of Defense.

Regional and functional planning impacts the entire staff of specialists which we have in our organization. Our staff of specialists determine requirements in each one of the functional areas such as ordnance, air stations or training. We also have a group of specialists who do operations research and systems analysis, examining the various functional areas and regional areas in terms of the economics involved. Economic analysis is a big part of putting together all the preliminary data that we must have before we can really get into the master planning process.

Once we have all the special analytical studies and all the requirements data, we're in a position to take an area, like Southern California, and go through it on a regional basis. We examine each activity on the basis of total Navy requirements, total community impact, total land usage in terms of our total requirements and come up with the best balanced plan for that region which would give the Navy its essential facilities to carry out its mission in that region. The plan would also have the highest possible utilization of the land holdings and facilities. At the same time, we try to satisfy community desires to utilize for their purposes some of the very high value properties which the U.S. Government holds. We have carried out several of these regional studies, both for the Navy and for the Department of Defense, including: Project "FRESH," which is the study of total DOD requirements on the Island of Oahu in the State of Hawaii; the National Capital Regional Plan, which was a study for the Department of Defense of the Washington area; Project "GATEWAY," which was a joint service regional study of Guam and Tinian and total Department of Defense requirements there; and Project "WIRE," which was a study of the Southwestern United States.

The Naval Training Command is an example of a Navy functional area. There are training activities scattered all over the United States. We studied the total training requirements in terms of total facilities assets, and approached the problem in the same way as we did the regional plan. We looked at community desires and requirements; we looked at usage of facilities and land; and we looked at total assets and total requirements and tried to come up with the best possible utilization of these assets to carry out the training mission.

The NAVFAC planning mission is in process of change to meet the changing Navy need for our services. It plays a vital and essential part in keeping the country's defenses strong, while adjusting to the impact of changing national priorities.

The Military Construction Budget

By CAPT PETER J. WATSON, USN
Assistant Commander
For Military Construction Planning

The Fiscal Year 1972 Military Construction Appropriation Act was signed into law on 18 November 1971 as Public Law 92-160.

The Act provided a total obligational authority of $355,500,000 for Military Construction for the Navy. The original Navy budget request was $405,500,000.

In spite of the Congressional reduction, the FY-72 total obligation authority was $24,296,000 greater than that for FY '71.

The Fiscal Year 1972 MILCON program now before Congress requests a total obligational authority of $554,200,000.

The impact of new weapons systems and environmental control are having their effects on Fiscal Year 1974. The starting support level for Navy MILCON for Program Objective Memorandum 74 development is $819,900,000. Of this amount $275,800,000 is for the undersea long range missile system (Trident) and $83,951,000 for pollution abatement projects.

Continued requirements definition and deficiencies validation, improved installation planning, consideration of the use of existing facilities, quality engineering and more extensive economic alternative analysis are needed to complement the MILCON programming and increase the support levels exclusive of special emphasis programs.

The reasons why this is important to NAVFAC are self evident. Suffice to say that new construction is our key area and certainly a very visible effort. The better NAVFAC does its job and the more the construction dollar is stretched, the better NAVFAC serves the fleet.

Ocean Engineering

NEW FRONTIERS FOR NAVFAC AND NCF

By CDR WALTER J. EAGER, CEC, USN
Director, Ocean Engineering Programs

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A major part of this problem is to counter the rapid Soviet submarine and surface ship buildup. This calls for a viable Navy program in anti-submarine warfare and strategic defense.

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With its rapidly developing ocean engineering and construction program, NAVFAC is a major element in another important phase of the development of the "New Navy" to meet any naval challenge to be encountered in the 1970's to 1980's.

$81 MILLION FOR POLLUTION ABATEMENT

By CDR J. B. GROFF, CEC, USN
Director, Environmental Protection Coordination Office

The Navy's pollution abatement of the environmental protection program is rapidly expanding with more restrictive standards looming on the horizon. More laws governing emission from ships and Naval bases are becoming a reality.

In Fiscal Year 1973, pollution abatement is claiming 14.6 percent of the Navy's military construction program for a total of $81 million. In Fiscal Year '74 through '77 pollution abatement will claim even more of the military construction dollar. On the O&MN side, additional deficiencies requiring identification, dollars and fixes are being discovered almost daily.

All of this comes about as a result of Executive Order 11507 in which the President mandated that the Federal Government must take the lead and solve its own pollution problems. It also states that the Navy must have under way, by 30 December 1972, correction of all its existing pollution problems.

The Navy's environmental protection program is rather unique in that it has to *deal with all three environments, air water and land.* Federal, state and regional standards are now evolving thereby generating additional deficiencies to be corrected.

The total Navy environmental protection program is estimated to cost $1.5 billion for Fiscal Years '68 through '77.

A total of $163 million has already been funded for Fiscal Years '68 through '72 and the out-year programs will top $110 million (O&MN&MCON) annually. Typical projects in both the O&MN and the military construction area include fuel conversion for heating plants, incinerators, smoke control at fire fighting schools, secondary and tertiary treatment plants, industrial waste treatment, connections to municipal systems, ship to shore sewage, noise abatement, oil spill cleanup and oily waste disposal.

By CAPT RICHARD E. ANDERSON, CEC, USN
Asst. Commander For Facilities Planning

The Armed Forces generally have been very heavily impacted by a switch in priorities in the United States to things which enhance the quality of life and things which enhance the environment. There is tremendous political pressure on the Department of Defense to get out of certain areas of the country where we now carry out our missions, get out of land that we hold and stop doing things that might affect the environment. We have to have a planned and reasoned recognition of this change in thinking and change in priorities so that we can respond accordingly. The people in Code 20 play a very important role in adjusting the Department of Defense land and facility requirements to this new set of priorities and fitting us into the total environment picture, which seems to be emerging in the United States.

This new challenge in the planning field is being met by regional and functional planning. These two types of planning have been a new departure in NAVFAC planning. They require a complete team effort of the whole Code 20 organization. They are very important to the Navy and they're important to the Department of Defense.

Regional and functional planning impacts the entire staff of specialists which we have in our organization. Our staff of specialists determine requirements in each one of the functional areas such as ordnance, air stations or training. We also have a group of specialists who do operations research and systems analysis, examining the various functional areas and regional areas in terms of the economics involved. Economic analysis is a big part of putting together all the preliminary data that we must have before we can really get into the master planning process.

Once we have all the special analytical studies and all the requirements data, we're in a position to take an area, like Southern California, and go through it on a regional basis. We examine each activity on the basis of total Navy requirements, total community impact, total land usage in terms of our total requirements and come up with the best balanced plan for that region which would give the Navy its essential facilities to carry out its mission in that region. The plan would also have the highest possible utilization of the land holdings and facilities. At the same time, we try to satisfy community desires to utilize for their purposes some of the very high value properties which the U.S. Government holds. We have carried out several of these regional studies, both for the Navy and for the Department of Defense, including: Project "FRESH," which is the study of total DOD requirements on the Island of Oahu in the State of Hawaii; the National Capital Regional Plan, which was a study for the Department of Defense of the Washington area; Project "GATEWAY," which was a joint service regional study of Guam and Tinian and total Department of Defense requirements there; and Project "WIRE," which was a study of the Southwestern United States.

The Naval Training Command is an example of a Navy functional area. There are training activities scattered all over the United States. We studied the total training requirements in terms of total facilities assets, and approached the problem in the same way as we did the regional plan. We looked at community desires and requirements; we looked at usage of facilities and land; and we looked at total assets and total requirements and tried to come up with the best possible utilization of these assets to carry out the training mission.

The NAVFAC planning mission is in process of change to meet the changing Navy need for our services. It plays a vital and essential part in keeping the country's defenses strong, while adjusting to the impact of changing national priorities.

The Military Construction Budget

By CAPT PETER J. WATSON, USN
Assistant Commander
For Military Construction Planning

The Fiscal Year 1972 Military Construction Appropriation Act was signed into law on 18 November 1971 as Public Law 92-160.

The Act provided a total obligational authority of $355,500,000 for Military Construction for the Navy. The original Navy budget request was $405,500,000.

In spite of the Congressional reduction, the FY-72 total obligation authority was $24,296,000 greater than that for FY '71.

The Fiscal Year 1972 MILCON program now before Congress requests a total obligational authority of $554,200,000.

The impact of new weapons systems and environmental control are having their effects on Fiscal Year 1974. The starting support level for Navy MILCON for Program Objective Memorandum 74 development is $819,900,000. Of this amount $275,800,000 is for the undersea long range missile system (Trident) and $83,951,000 for pollution abatement projects.

Continued requirements definition and deficiencies validation, improved installation planning, consideration of the use of existing facilities, quality engineering and more extensive economic alternative analysis are needed to complement the MILCON programming and increase the support levels exclusive of special emphasis programs.

The reasons why this is important to NAVFAC are self evident. Suffice to say that new construction is our key area and certainly a very visible effort. The better NAVFAC does its job and the more the construction dollar is stretched, the better NAVFAC serves the fleet.

Ocean Engineering

NEW FRONTIERS FOR NAVFAC AND NCF

By CDR WALTER J. EAGER, CEC, USN
Director, Ocean Engineering Programs

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Construction Battalion Centers

davisville, r. i. • gulfport, miss. • port hueneme, calif.

By FREDERICK J. CARTER
Director, CBC Command Management Division

The Naval Facilities Engineering Command has two basic missions, one of which is related to construction and maintenance of the shore establishment both here and overseas. Its other mission relates to the pure military functions the command performs under mobilization/contingency situations.

The Construction Battalion Centers are concerned with the military mission of the Command in part, serve as the homeport for the Naval Construction Force, and as the designated outloading point from which both forces and construction materials required for tactical support and for overseas bases are shipped.

One of the responsibilities assigned to the Command is that of the Navy stock point for 2 "C" cognizance material, commonly known as civil engineering support material. This includes trucks, tractors, relocatable buildings, storage tanks and a wide variety of pre-engineered construction material. We have about $130 million worth of this material stored at three Centers which are located at Port Hueneme, Calif; Davisville, R.I.; and Gulfport, Miss.

At the present time we have ten active Naval Mobile Construction Battalions; four homeported at Port Hueneme, three in Davisville, and three at Gulfport.

Port Hueneme is the largest of the three Centers. It has several major tenant activities which, while not under the Command of NAVFAC, are directly related to the Civil Engineer Corps and to the Seabees. The Naval Schools, Construction; the Civil Engineer Corps Officers School and the Naval Civil Engineering Laboratory.

Additionally, we have the Naval Schools Construction, located at Davisville, and a Construction Training Unit located at Gulfport. The three Centers employ approximately 2,900 civilian employees and have facilities ranging from personnel support facilities to waterfront and storage facilities. The centers serve as homeport for some of the active ships of the fleet. The CBC's represent a major network of activities all linked to the military engineering mission assigned to the command.

These activities are conducted in peacetime at a level of effort necessary to sustain military readiness in terms of material and logistic capacity necessary to meet mobilization or contingency requirements. Basically, the peacetime mission is to maintain material and to maintain the logistics support capability that is needed in the event of hostilities.

At the centers, the tempo of activity is highly cyclic with peaks developing during periods of hostilities, falling off into fairly even low level during peacetime periods. The Centers represent a form of insurance capability and are required to support the command's mission under general and limited war, or contingency operations.

SELF HELP PROGRESS

By CDR BOBBY E. STULTZ, CEC, USN
Former Asst. Director, Seabees Ashore/Self Help Programs

The Self-Help Program was established by the Chief of Naval operations in August 1970 with a view towards contributing to the maximum improvement of personnel support facilities throughout the navy.

The poor condition of those facilities was cited time and time again as one of the reasons why people were not reenlisting and why young officers were not making a career of the Navy.

We feel that since the inception of the Self-Help Program, which involves the use of Seabees guiding non-Seabee sailors in helping themselves, we have made a significant contribution to the rise in the reenlistment rate.

The Construction Battalion Units (CBUs) are small units that were established at major naval complexes for the purpose of taking the lead in the Self-Help effort. They have been particularly successful in making improvements in the living conditions in the barracks. There are rooms now, where there used to be open spaces. Hobby shops are being made available through self-help and golf courses are being improved.

The Self-Help Program has brought about improvements in housing areas. There have been new community centers built, or existing buildings improved.

The Self-Help Program is a purposely ambitious program. *We want the program to reach and touch each and every Navy man and woman and the dependents of Navy personnel throughout the world.* We want to provide the very best that we can provide for our people. We want to stretch each dollar as far as it will go.

Every individual can help in this program by devoting some of his time to the Self-Help effort to improving those facilities that are people-oriented. Finally, every individual can help tremendously by doing his utmost to take good care of those facilities that we now have.

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I hold a _____ degree in _____.

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	Excellent	Good	Fair	Poor
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NOW, ABOUT . . .

The article which appeared in the January 1972 edition of *The Navy Civil Engineer*, and authored by T. C. Murphy of CECOS, has resulted in unequalled readership response. Here are *most* of the favorable reactions and *all* of the unfavorable:

"I just read your article "The Young Officer 1972" in the Navy Civil Engineer. It is outstanding and should prove to be thought provoking reading for Navy people." — CDR.

"Your article on the Young Officer was outstanding. Although I am a retired Captain, I am completely in sympathy with the need to update the CEC to make it appeal to today's young men to solve today's problem."—PhD

"I would like to see more technical articles like those that used to appear in the Technical Digest — articles written by acknowledged experts in their field, not by amateurs.

"I have read a few articles in the new quarterly version of the magazine on subjects that I had direct personal knowledge of, and found the articles inaccurate, slanted, shallow and generally poor. I believe that all articles published in an official CEC publication should be the best quality and contain reliable information that can be used by all readers. The Jan. 1972 issue on the "Young Officer" is full of slanted opinions, tossed together cliches and mixed-up ideas not really worthy of an article in the magazine." CAPT, CEC, USN

"After reading Professor Murphy's articles on leadership, it seems to me that some kind of survey or series of articles on leadership would be appropriate for the Engineer." — MS, Sanitary Engineering.

"Articles by staff at CECOS have been exceptionally well done. Mr. Murphy's on "The Young Officer" is a case in point. While specifically interested in the field of personnel admin./Mgt the articles on engineering, pollution control, etc. are valuable background material and can be used effectively at times in the 'Liberal Arts' community to demonstrate efforts by the military to help civil problems."

"Your recent articles from CECOS were outstanding. We can use more of this sort of thing."—ICAF Faculty

"Excellent. Mr. Murphy did a splendid job — interesting reading."—ENS, PWD

"This is a particularly good issue, scholarly, an in-depth study of modern military leadership problems."—CDR (RET), GS-12

"Ted Murphy's article in Jan 1972 issue is outstanding and an example of the type of thinking and discussion needed in the Navy."—Capt., RES.

"I had the pleasure of reading your article "The Young Officer 1972" last evening. Right on. I'm not sure senior officers will learn from your observations. You yourself express doubt. I think I agree."—CDR, CEC

"The officers and midshipmen of the NROTC unit were most impressed with the article which appeared in the January 1972 issue of the Navy Civil Engineer entitled 'The Young Officer."—NROTC, Univ.

" 'The Young Officer' is unquestionably the most refreshing thing I have seen in print on the subject of leadership for many years."—CAPT, CEC

"Having just read your opinion, THE YOUNG OFFICER 1972, from the January issue of the NAVY CIVIL ENGINEER, the phrase that comes to mind to adequately praise your authorship is the traditional Navy "Well Done."—PWO

"My copy of the January 1972 Navy Civil Engineer arrived in the mail today carrying to me your opinion article. "The Young Officer 1972, was as fresh and as welcome a revitalization of my spirit as the arrival of the spring season. Thank you for again challenging and assisting me; a young officer, to re-examine my leadership qualities and leadership responsibilities."—CEC, NAS

"Your article, 'The Young Officer' is a remarkably introspective dissertation and should be republished in the *Naval Proceedings*."—Consulting Engineer

"As you well know, the Navy is constantly bemoaning the fact that junior officers won't stay in the Navy and are writing articles concerning this in their various publications. Thus far I had read nothing which even comes close to a good analysis of the situation until I read your article. This whole thing has been brought very close to home since I have an officer son who is a naval aviator. He joined with great enthusiasm; however, he has developed a thorough disgust for the whole thing and can hardly wait to get out. Apparently most of his friends feel the same way."—Consulting Engineer

"T. C. Murphy's article in the January 1972 edition is, in my opinion, one of the most relevant and reasoned articles I have read in any publication. I fervently hope that the message is not lost like another voice in the wilderness! Similar analyses on some of the other 'sensitive' but crucial problems of the command and of corps could be most beneficial. Perhaps a spokesman for the 'cons' might wish equal time and space." — BA

"Some of the recent articles have been excellent; in particularly the one on leadership in the January 1972 issue."—CDR, RES

"Too much dependence on the CECOS Civilian staff for articles I'm getting a little tired of Mr. Murphy." — PWO, Naval Hospital

"The article by Murphy in this issue was excellent — more in this area of leadership and management practice would be most informative and useful." — MBA and MS

"This issue on leadership is outstanding." — USNR

"The 'Young Officer' issue was thought provoking." — LCDR, USNR-R

"I am certainly glad someone is waking up; the 'Young Officer' is a good example. The 'old guard' ideas are the exact reason I got out of the Navy." — Lt (JG) USNR (Inactive)

"Mr. Murphy's opinion on 'The Young Officer' is OUTSTANDING. Its about time someone said it." CEC

"In a different area of interest, 'The Young Officer' (Jan. '72) is a fine piece on a delicate theme that cannot be swept under the rug."—MS

"The article 'The Young Officer' is excellent but I am glad to see that this is the 'opinion' of the author, because there are some very debatable points, especially the 'racist' attitude expressed in wardrooms. I have been a member of many wardrooms, so I question his facts on this matter." — LCDR, Ret

"The opinion articles have been exceptionally outstanding and they are the first thing I look for." — BS Civil Engr.

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SEABEE MEMORIAL AND SCHOLARSHIP FUND

The Seabee Memorial Association, a non-profit organization, has been established in Washington, D.C., to memorialize the SEABEES.

A monument dedicated to all Seabees who have served their country since the founding of the Naval Construction Force in 1942 will be erected on the Avenue of Heroes leading into Arlington National Cemetery, Washington, D.C.

Additionally, the Association plans to institute an annual scholarship award program for the sons and daughters of all Seabees, active, retired, reserve and deceased, as a living memorial.

Voluntary contributions may be made to the Seabee Memorial Association Inc., P. O. Box 19383, Washington, D.C. 20036, and are tax deductible under Section 501 (c) (3) of the Internal Revenue Code.

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